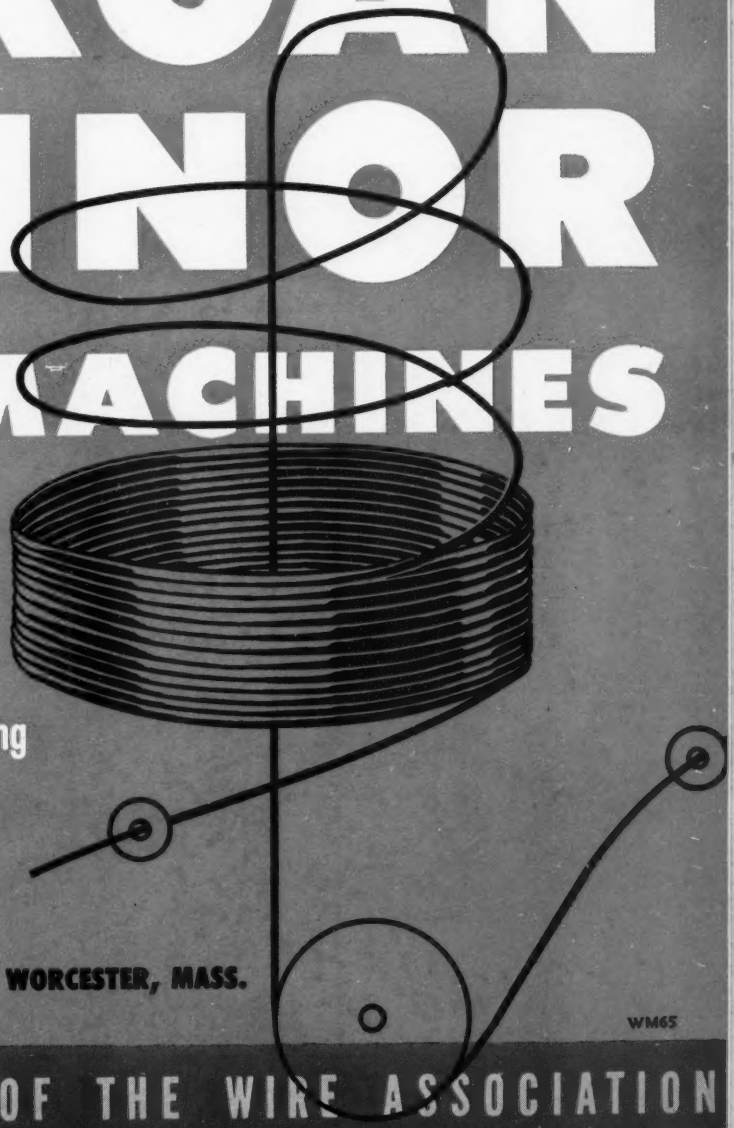
WIRE AND WIRE PRODUCTS

AUGUST 1952

MORGAN CONNOR
WIRE MACHINES



Efficient air cooling permits the drawing of all grades of wire at high speed

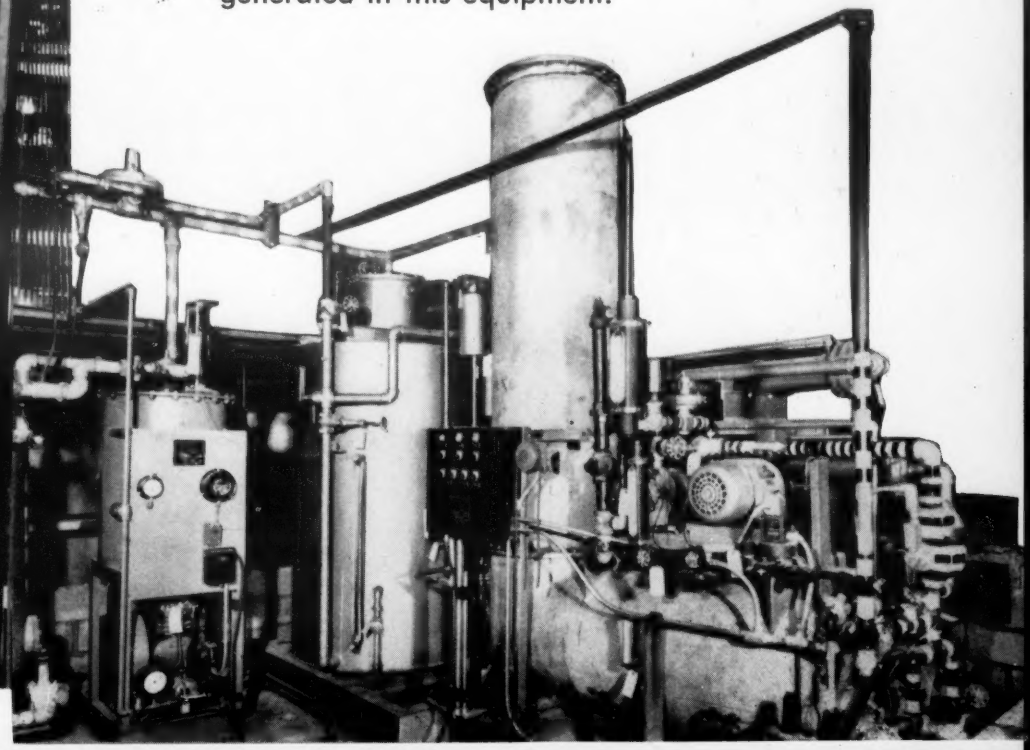
Morgan Construction Company • WORCESTER, MASS.

WM65

OFFICIAL PUBLICATION OF THE WIRE ASSOCIATION

WILSON WIRE ANNEALING

Sheffield Steel Corporation of Kansas City, Missouri, has recently expanded its wire annealing installation to include three 62" x 84" furnaces and two 48" x 84" furnaces, all operating with nitrogen atmosphere generated in this equipment.



Engineered and constructed by

Lee Wilson

ENGINEERING COMPANY, INC.

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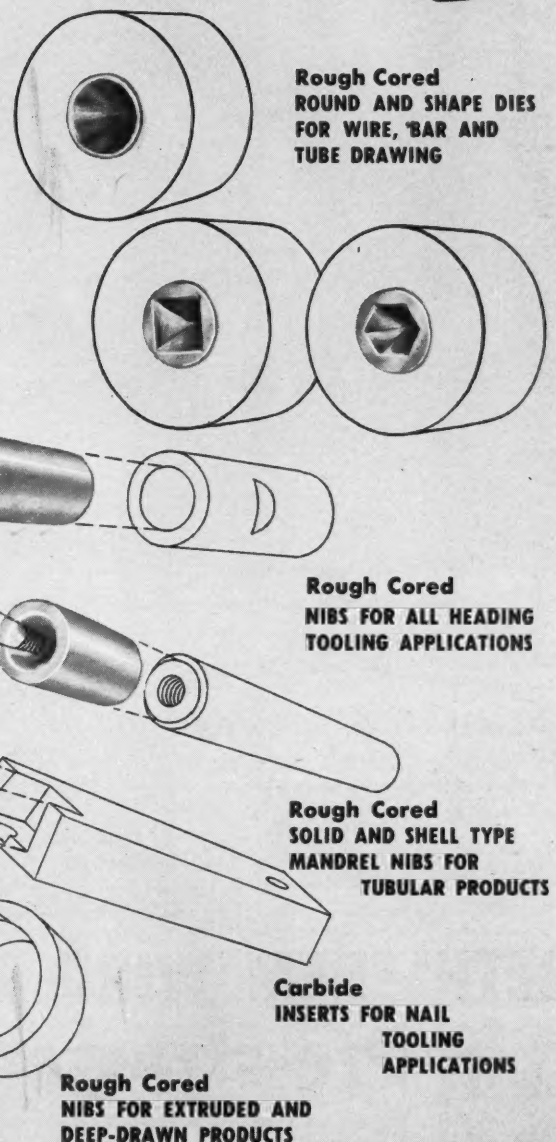
Specify Firthaloy

FIRTHALOY Sintered Carbide is the standard of quality for drawing and forming operations. It assures maximum production, uniform size, excellent finish and economical operation. To do work better, faster, and cheaper . . . specify FIRTHALOY Sintered Carbide when ordering from your local tool and die maker.

Firth Sterling supplies standard wire, tube and bar dies in a rough cored condition in sizes up to R7. Dies R7 and larger are available both rough cored and rough drilled. In addition, FIRTHALOY Sintered Carbide is furnished in a wide variety of shapes and sizes . . . . another reason why leading tool and die makers have adopted Firth Sterling as a preferred source.

When you specify FIRTHALOY, you are assured of close co-operation between your tool and die maker and experienced Firth Sterling Service Engineers . . . "teamwork" that adds up to maximum performance and increased production.



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ROUND AND SHAPE DIES FOR WIRE, BAR AND TUBE DRAWING

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NIBS FOR ALL HEADING TOOLING APPLICATIONS

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SOLID AND SHELL TYPE MANDREL NIBS FOR TUBULAR PRODUCTS

Carbide
INSERTS FOR NAIL TOOLING APPLICATIONS

Rough Cored
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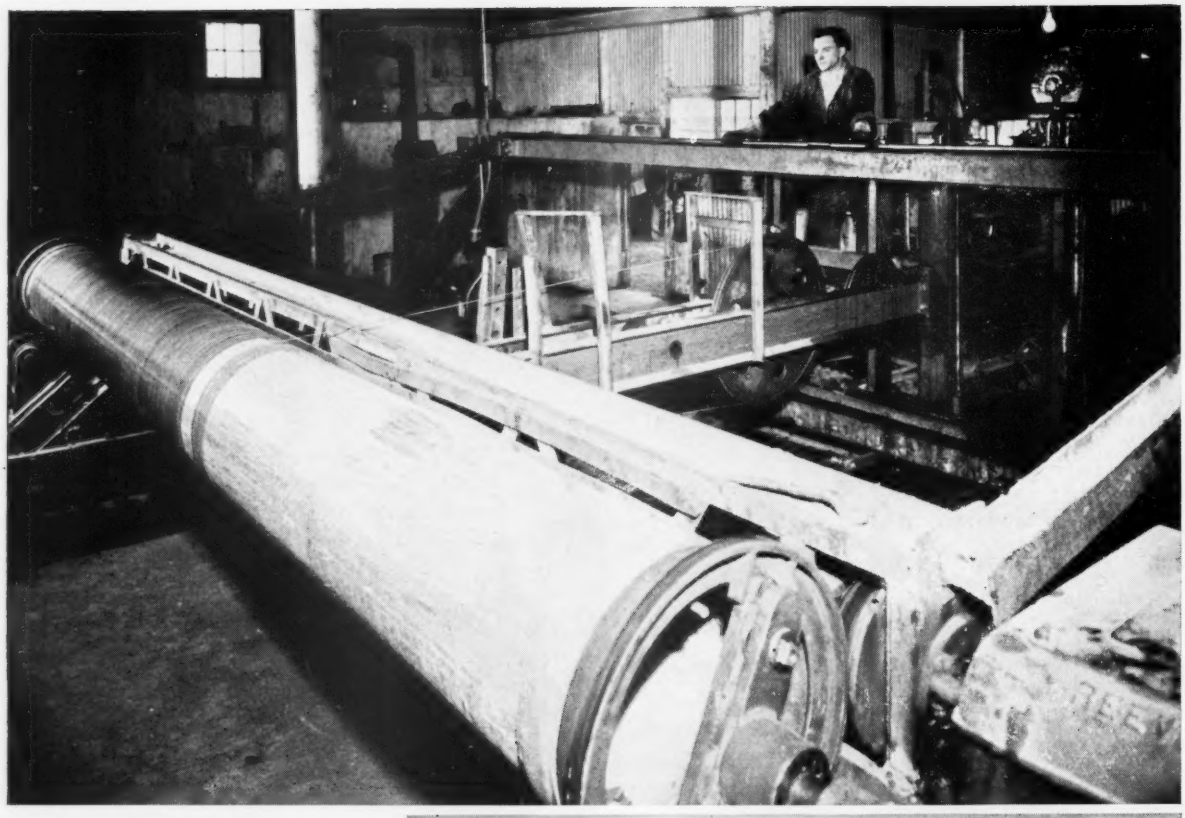


After a concrete lining is spun centrifugally or poured inside a steel cylinder, Bethlehem high-tensile steel wire is wound around the cylinder.

Coated with rich cement mortar, finished pipes in 16-ft lengths depart for duty. Pre-stressed concrete pipes are made with diameters varying from 16 in. to 48 in.

Photographs courtesy of Lock Joint Pipe Company

BETHLEHEM WIRE GOES UNDERGROUND in Pre-stressed Concrete Pipe

When pre-stressed concrete pipe goes to work steel wire hugs every inch of it, helping to counteract tremendous water pressures.

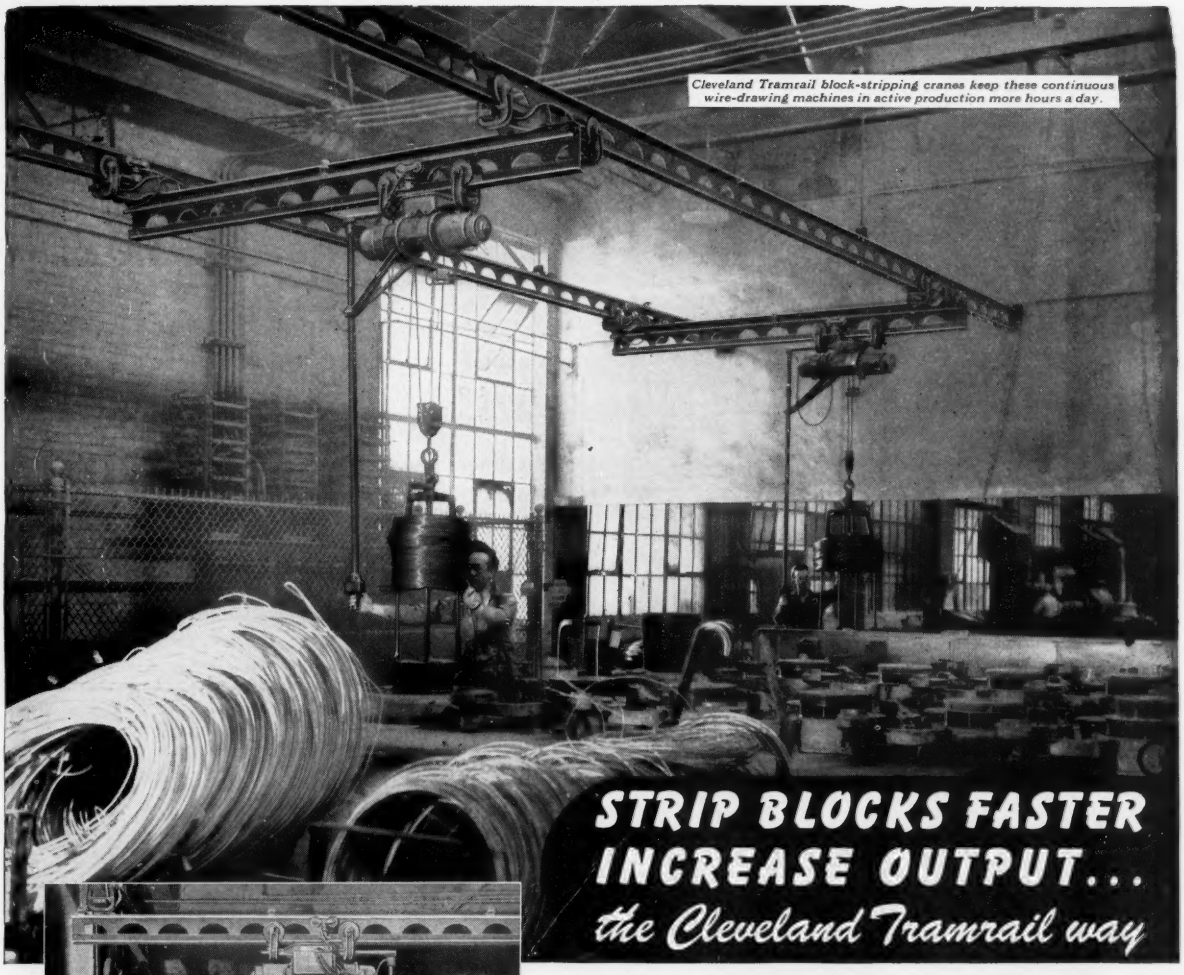
Wound under high tension by a special machine, Bethlehem wire compresses — or pre-stresses — the steel-and-concrete core. The wire adds tremendously to the strength of the pipe. It permits a lighter weight of finished pipe than could be obtained by using other systems of concrete reinforcement.

Wire for pre-stressed concrete pipe is a Bethlehem specialty. We are continually developing many kinds of steel wire to meet special requirements and new uses. Bethlehem engineers will be glad to contribute their experience to any problems you may have in the selection and processing of steel wire.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

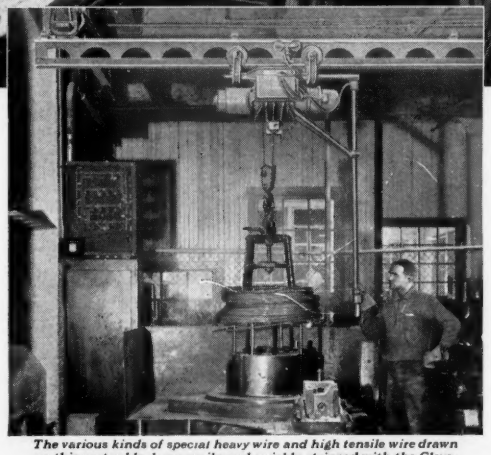
★ BETHLEHEM STEEL ★



Cleveland Tramrail block-stripping cranes keep these continuous wire-drawing machines in active production more hours a day.

STRIP BLOCKS FASTER INCREASE OUTPUT...

the Cleveland Tramrail way



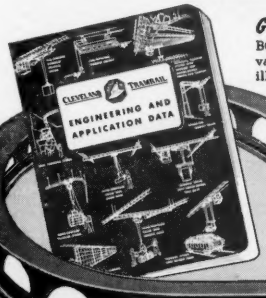
The various kinds of special heavy wire and high tensile wire drawn on this motor block are easily and quickly stripped with the Cleveland Tramrail crane.

Many mills in the United States and Canada have installations of Cleveland Tramrail block-stripping cranes and carriers. They are stripping draw blocks faster and keeping them in operation more hours a day, thus stepping up output.

Smooth rolling Cleveland Tramrail equipment has been especially designed for this service. It allows a man to take care of more blocks and draw heavier bundles. Older experienced men can usually keep pace with younger fellows when this equipment is provided.

The equipment consists of a hand-propelled crane or carrier with an electric hoist. The crane or carrier is easily pushed on its ball-bearing wheels by means of the rigid arm attached to the carrier. Push buttons, conveniently located in the handle at the lower end of the arm, control the hoist.

Cleveland Tramrail overhead materials handling equipment has been developed to serve every department in rod and wire mills.



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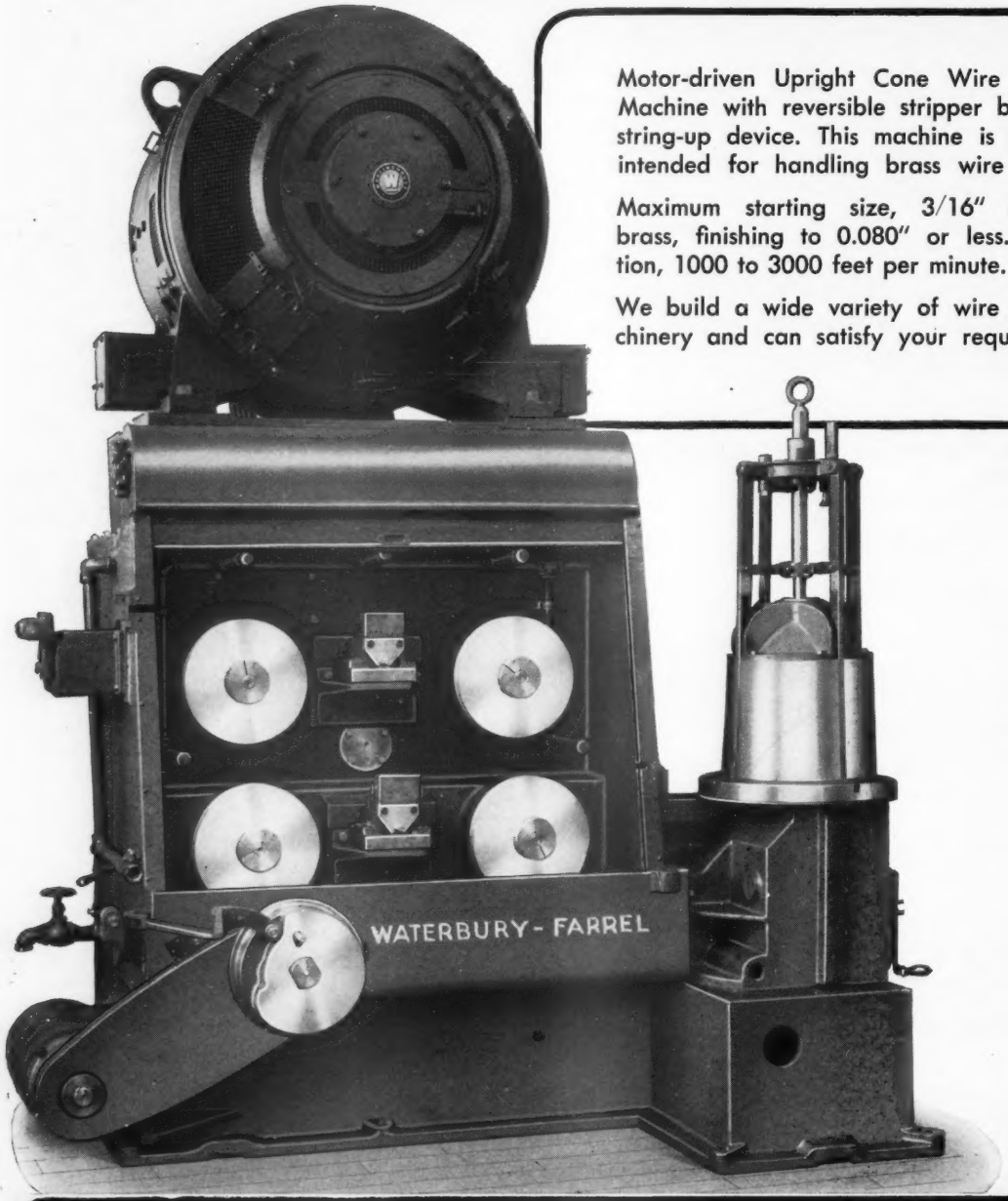
THE CLEVELAND CRANE & ENGINEERING CO.
9201 East 288th St. Wickliffe, Ohio

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

Just one in a wide variety of . . . .

WIRE DRAWING MACHINES



Motor-driven Upright Cone Wire Drawing Machine with reversible stripper block and string-up device. This machine is primarily intended for handling brass wire in coils.

Maximum starting size, 3/16" annealed brass, finishing to 0.080" or less. Production, 1000 to 3000 feet per minute.

We build a wide variety of wire mill machinery and can satisfy your requirements.

FOUNDED WATERBURY FARREL 1851

THE WATERBURY FARREL FOUNDRY & MACHINE COMPANY

WATERBURY, CONNECTICUT, U.S.A.

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WIRE AND WIRE PRODUCTS*

Reg. U. S. Pat. Off.

A monthly publication devoted to the production of Wire, Rod and Strip, Wire and Rod Products and Insulated Wire and Cable.

DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING

Vol. 27 AUGUST, 1952 No. 8

Designated as Official Publication By The Wire Association

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FLANGED STEEL TRAVERSES

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Niles Flanged Steel Traverses are manufactured in a wide range of sizes up to 56" diameter and 48" traverse... in plain, painted and hot dip galvanized finishes. The special "Reinforced Type" has *extra strength* where it is needed most—at bolt holes and base of the flange—yet saves weight through use of lighter gauge steel. Width of flange and number of bolt and drain holes are furnished to your specifications. Available for prompt delivery. Write for prices.

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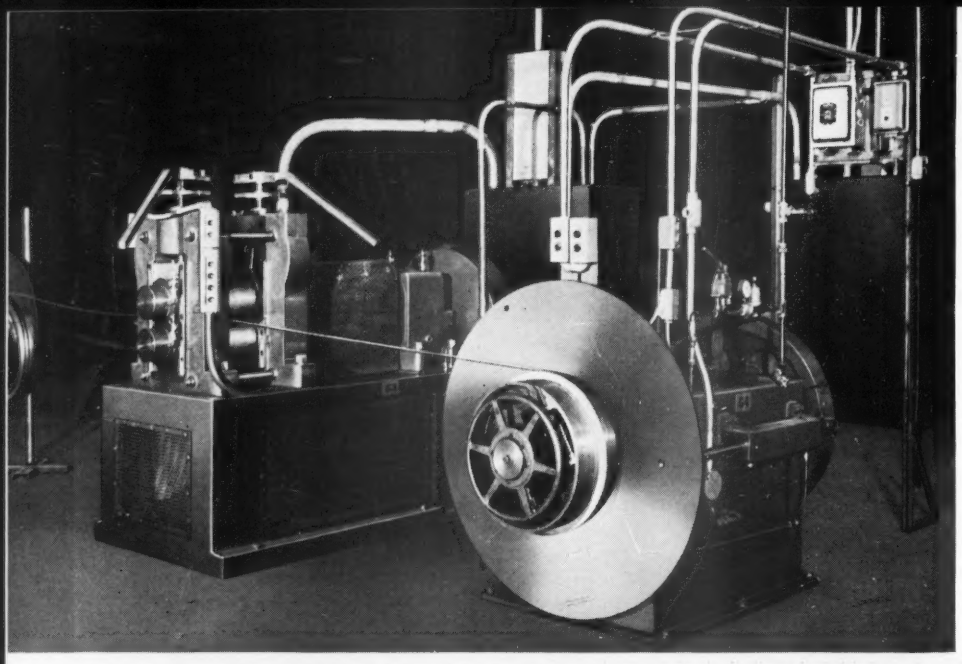
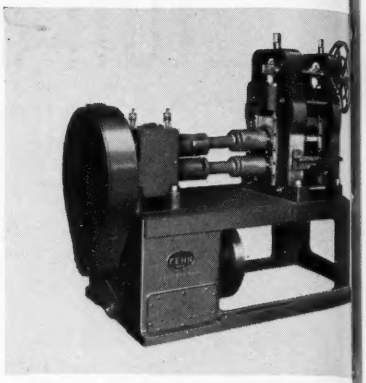


THIS FENN COMBINATION, consisting of the new No. 061 Two-High Roller Bearing Rolling Mill and No. 30 Take-Up Reel, installed at Federal-Mogul's St. Johns, Michigan Plant...



GREATER ACCURACY of the new No. 061 Two-High Rolling Mill comes from heavier roll construction made possible by Fenn-designed extra-heavy precision roller bearings. Roller thrust bearings on outer bearing boxes maintain axial alignment, eliminating marks or "shadows" on the stock. Universal joint and herringbone gears provide smoother drive from motor through to rolls, for smoother finish of strip.

Reduces Inventory...Saves Maintenance

...CUTS COSTS

Federal-Mogul is one of the growing number of forward-looking firms that are making sure of an adequate supply of top-quality strip by "rolling their own."

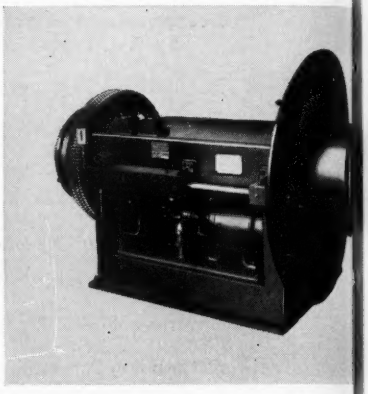
This way, they roll one stock thickness to meet many needs, thus reducing stock inventory . . . the more accurate strip they produce speeds production and saves maintenance on fabricating machines . . . and there's further economy in eliminating such "mill extras" as set-up, inspection and short run lots.

To get these benefits at their fullest, Fenn units are the obvious choice. The installation shown above, for example, is one of many typical Fenn combinations for the production of ferrous or non-ferrous strip—at top speed and lowest cost.

GET THE WHOLE STORY

Fenn Roller Bearing Rolling Mills are available in Two-High and Four-High models, with roll diameters from 4" to 16", single or tandem units, speeds up to 2,000 ft. per min. Fenn Take-Up Reels are made in a range of sizes for either traversing or "pancake" winds. For full information about their many cost-saving, efficiency-boosting advantages, contact your nearest Fenn Distributor, or write direct to

THE FENN MANUFACTURING COMPANY
1853 Broad St., Hartford 1, Connecticut



FASTER REMOVAL of finished coil is one big advantage of Fenn's No. 30 Take-Up Reel — resulting from such design-improvements as collapsing drum and hydraulic stripper. Having a capacity of 3,000 lbs. of coil, while providing a tension of 2,500 lbs., it combines with the Fenn Mills to handle up to 2,000 ft. of strip per min.

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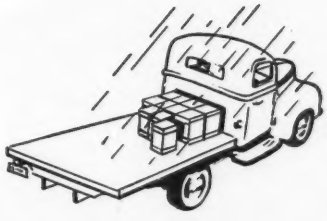

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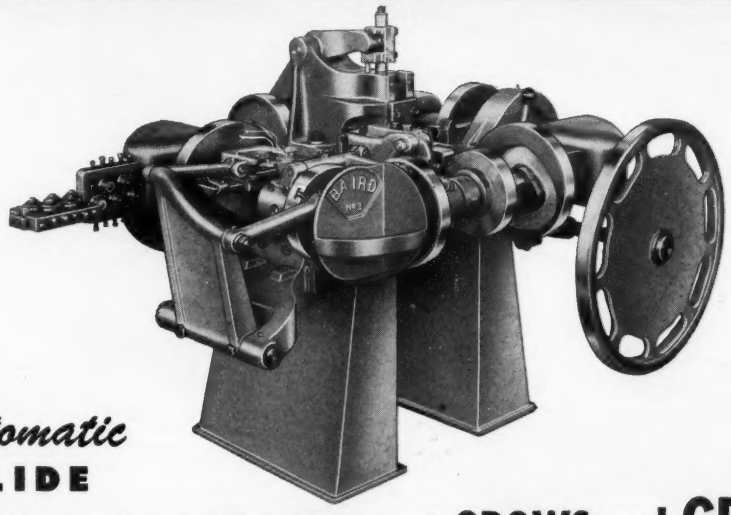
HIGH PRODUCTION TOOLING



BAIRD *Automatic* FOUR SLIDE

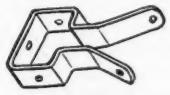
. . . the Machine that GROWS and GROWS and GROWS

Start, if you wish, with the standard (stocked) 4-slide, which in itself is remarkably versatile in forming hundreds of articles from wire and ribbon metal.

Then when conditions demand . . . a call for either even greater versatility of production or a change in certain products . . . you may add one or more attachments to the standard model, so designed that "machine growth" is simplified and practical.

Thus, with gradual investments, you will build your Baird 4-slide to a full production unit capable of turning out the widest variety of wire and ribbon products. Here is a list of attachments easily added . . . but naturally, not all on one machine . . . as they might become too complicated.

1 Horizontal Press Attachments



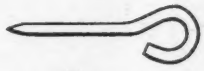
2 Form Raising Attachment

3 Pin Pulling Attachment

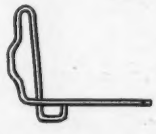
4 Setting Attachment

5 Secondary Cut-Off Attachment

6 Nail Point (Vertical Cut-Off) Attachment



7 Vertical Forming Attachment



Baird engineers will gladly develop tooling from your parts or specification. "Ask Baird about it!"

the **BAIRD MACHINE COMPANY**
STRATFORD • CONNECTICUT

AUTOMATIC MACHINE TOOLS • AUTOMATIC WIRE & RIBBON METAL FORMING MACHINES • AUTOMATIC PRESSES • TUMBLING BARRELS

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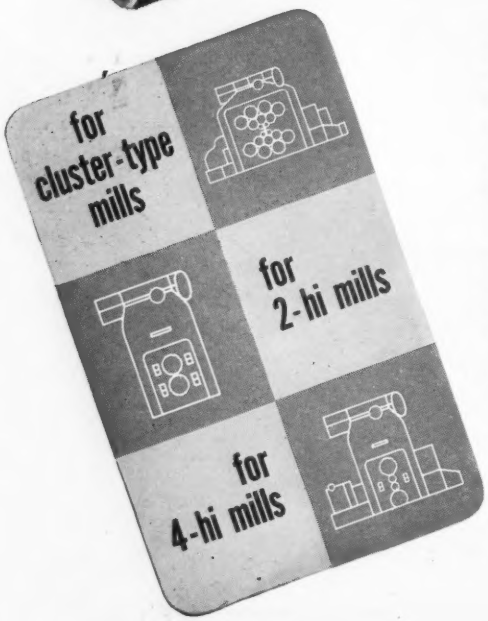


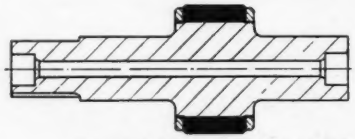
● Here's the magic key to improved surface finish, more uniform gauge and closer tolerance on all types of cold-rolled metal strip. Whether you require an ultra-mirror finish or just a plain, smooth surface—work rolls of Talide (Tungsten Carbide) are the answer. Only Metal Carbides has the know-how and experience to produce carbide rolls from 1 pound laboratory size up to 1,000 pound production mill rolls.

Long-lasting Talide Rolls, made of the world's hardest metal, step up mill production and reduce scrap and rejects. They last 25 to 50 times longer between grinds, and can be reground twice as many times as ordinary rolls. They impart improved physical properties to the strip, reduce plating costs, and eliminate the need for subsequent polishing operations.

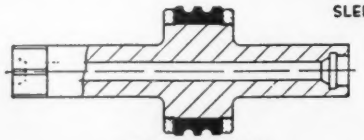
Over 50 mills are now using Talide Rolls for rolling cold-rolled, copper, brass, stainless, spring steel, razor steel, alloys, carbons, aluminum foil, tinsel ribbon, flat and shape wire.

Talide Rolls are designed to help the metalworking industry produce more efficiently—in less time—at lower cost.

Send for Catalog CR-50



SLEEVED ROLLS FOR FLAT WIRE



FOR SHAPE WIRE

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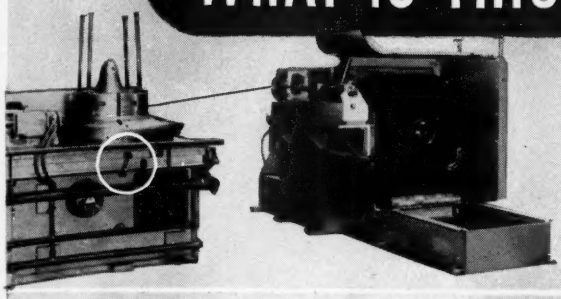
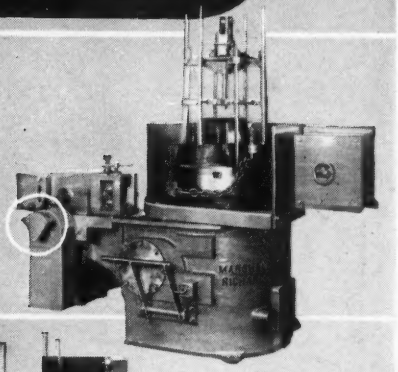
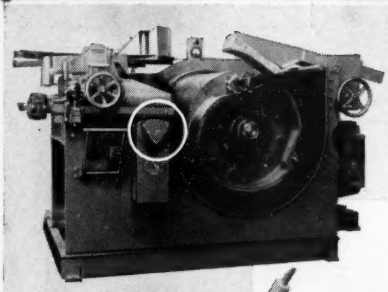
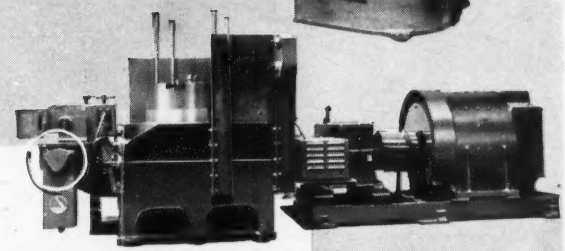
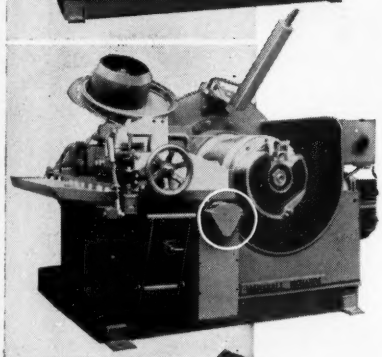










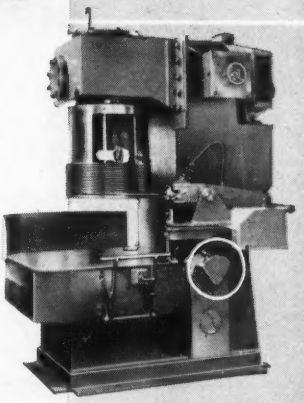
We are asked this question so often that we are publishing a booklet to answer it—do not hesitate to send for a copy if you are interested.

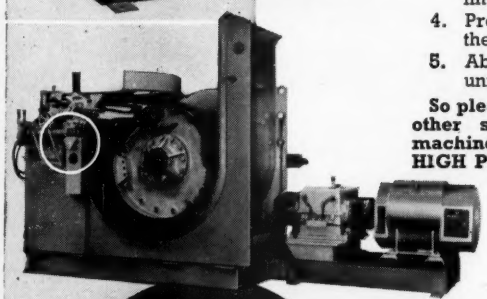
Briefly, we have developed for our Wire Drawing and similar machines a system of Electrical Control, based on the use of the Mercury Arc Rectifier, which approaches theoretical perfection for the job.

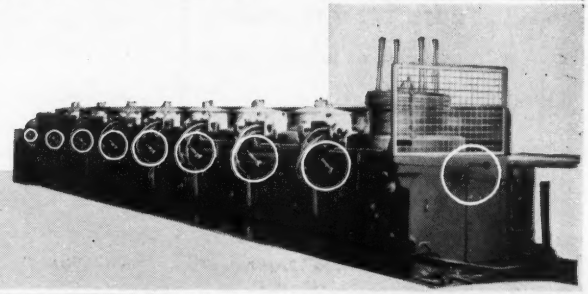
It gives, with the manipulation of a single small lever:

1. Slow, safe, full torque, pulling-in.
2. Smooth acceleration to pre-determined drawing speed, without snatch.
3. Infinitely variable operating speeds between specified limits—and full horsepower between these limits.
4. Precise, swift control over positioning of the dog—the block creeps both ways with the one lever.
5. Ability to connect a machine as a single separate unit to your A.C. supply.

So please send for the booklet to find out about one other special feature of MARSHALL-RICHARDS machines which, with all the others adds up to HIGH PRODUCTION.





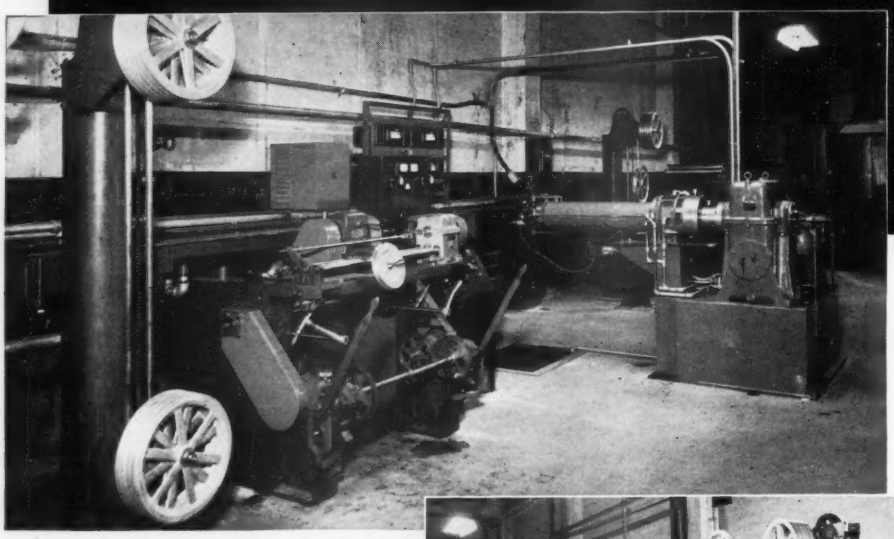


MARSHALL RICHARDS MACHINE CO. INC.

1100 SOUTH BROAD ST. · TRENTON 10 · NEW JERSEY
Telephone: TRENTON 9478 Telegrams: MARICH TRENTON

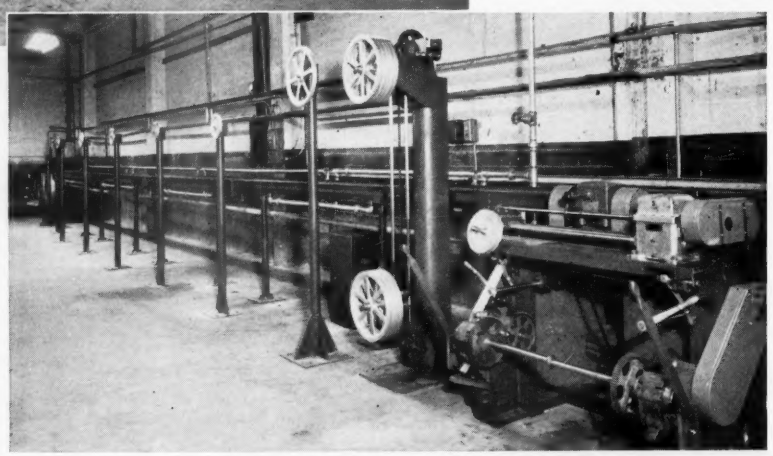
M.R. 55

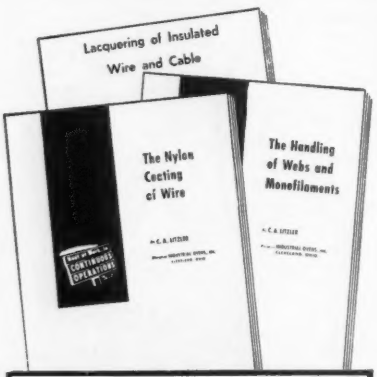
Complete Continuous System for Plastic Jacketing of Wire and Cable



A view from the takeup end of a complete extrusion line with nylon head tuber. Driven letch stand and tension stand shown in the background.

A view of the same extrusion system showing capstan, cooling trough, tension control stand and continuous takeup machine.





Three Valuable Booklets ...Yours for the Asking

- "Lacquering of Insulated Wire and Cable"
- "The Handling of Webs and Monofilaments"
- "The Nylon Coating of Wire"

Available without charge to wire executives and operating men when requested on business stationery.

● Whether your coating material is nylon, polyvinyl chloride or other plastic or rubber compounds, complete IOI extrusion systems enable you to jacket wire or cable faster and at lower production cost. IOI machines for fine to medium wire sizes are usually equipped with a constant tension system drive and synchronized driven wire payoff stand to minimize actual loads on the wire itself.

Large-diameter wire and cable machines are equipped with heavy-duty constant tension drives. Pneumatically loaded wire accumulators at payoff and takeup ends allow for completely continuous jacketing of wire and cable.

These machines are typical of IOI's versatility in designing extrusion insulating systems. Similarly advanced engineering characterizes IOI equipment for the enameling and lacquering of electrical conductors.

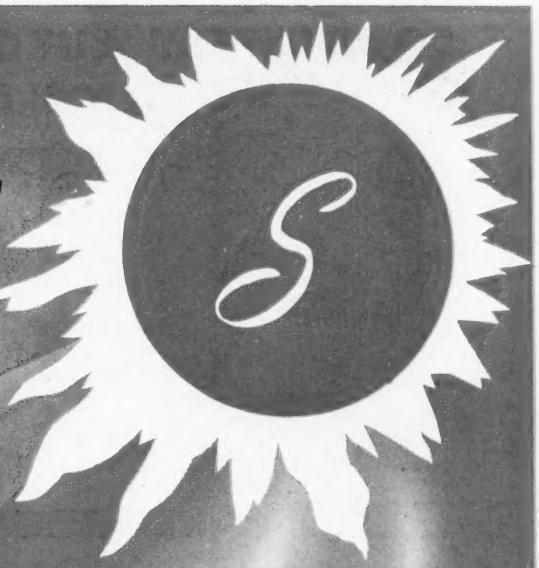
INDUSTRIAL IOI OVENS, INC.

ENGINEERING VERSATILITY

13825 TRISKETT ROAD CLEVELAND 11, OHIO

STAYS BRIGHT AS DAY ! WITH

STANDARD'S BRIGHT WIRE COMPOUNDS



FOR DRAWING CLEAN BRIGHT STEEL WIRE

1, 2, 3, 4 and 5 holes

Contact one of our representatives or the home office for the proper compound, depending on the number of holes being drawn.

STANDARD INDUSTRIAL COMPOUNDS COMPANY has pioneered most of the outstanding contributions to better wire drawing through better lubricants. Consult with STANDARD for the solution of your difficult problems. We welcome your inquiries.

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Chicago 44, Ill.

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5536 Lisette
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Standard Industrial
Compounds Co.
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wire drawing lubricants *Standard* INDUSTRIAL COMPOUNDS CO., INC.

4600 WEST FERDINAND STREET
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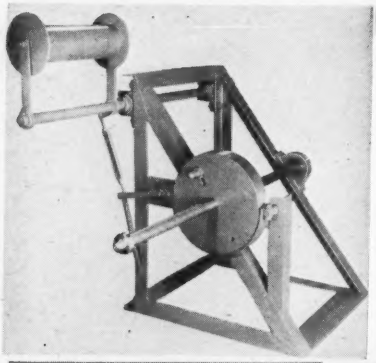
COMPLETELY AUTOMATIC SPARK TESTING EQUIPMENT FOR ELECTRIC WIRE AND CABLE



THE DAVIS PAY-OFF

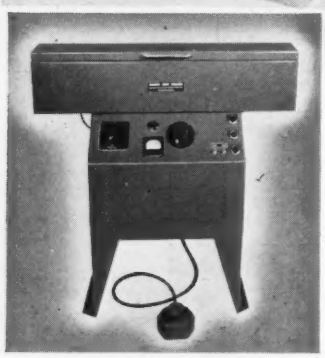
The **DAVIS PAY-OFF** is of simple design and rugged construction. Tension and braking are controlled automatically, so that over-travel of wire is prevented. It will stop instantaneously when the wind-up spool stops.

Equipped with self-aligning ball bearing pillow blocks to reduce friction and prolong the life of the mechanism.

While designed primarily for use with **DAVIS SPARK TESTERS,** this versatile machine may be used in other operations in your mill where pay-offs are needed. Will give years of dependable service.

Pay-off stands are designed for right or left. Also in shaft sizes of 1¼" or 1½". Will accommodate reel sizes up to 30" in diameter and 16" wide.

ALL DAVIS ELECTRICAL EQUIPMENT MEETS UNDERWRITERS APPROVAL



THE No. 4 SPARK TESTER

This No. 4 unit and bead chain electrode combined with a Davis Pay-off stand, a Davis Take-up, and a predetermining counter, makes a complete Respooler and Resparker.

This complete unit will Spool Test wire up to 1200 feet per minute. It automatically shuts off when the reject is found by the sparker and also when the predetermined amount of wire has gone through the counter. Footage can be increased by lengthening the electrode. The unit can also be designed to produce constant footage. Listed below are the standard bead chain type electrodes and their capacity:

18"— 500 feet per minute—up to 1" wire size
24"— 800 feet per minute—up to 1" wire size
36"—1200 feet per minute—up to 1" wire size

This Davis spark tester is so thoroughly engineered, it will, if instructions are followed, detect 99% of all faults in the insulation.

This unit can also be obtained in voltages up to 30,000. Electrodes can also be obtained to accommodate up to 2" cable.

DAVIS SPARK TESTER OPERATES ON 110 VOLTAGE

220-440 MOTOR VOLTAGE ON ALL DAVIS EQUIPMENT —OTHER VOLTAGES MAY BE HAD TO MEET YOUR SPECIFICATIONS.

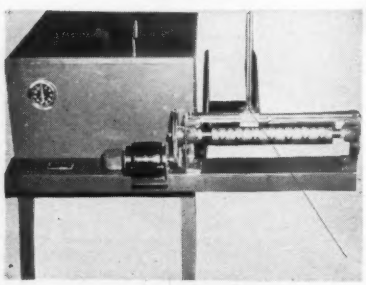
THE DAVIS PAY-OFF AND TAKE-UP IS BUILT FOR EITHER LEFT OR RIGHT HAND SHAFT.

COUNTER

The Davis predetermining counter is noted for its ease of setting and its accuracy. Mounted on its own pedestal, it can be easily moved for the convenience of the operation.

Wire size .010 to ½" also available in heavy duty model—wire capacity 3/16" - 1½" cable.

When used on a spark testing unit, its built-in switch immediately shuts off the power to your spool take-up or predetermined counter when any desired amount of wire has passed through it.



TAKE-UP

A versatile variable speed, constant tension, motor-driven mechanism that is electrically controlled.

Designed for use with the **DAVIS SPARKER,** it has nevertheless many other applications where fast and accurate lay-winding are desired.

This Take-up is equipped with an adjustable traverse that will accommodate reels up to 16 inches in width and 30 inches in diameter, with shaft sizes of 1¼" or 1½" in diameter.

The electrically controlled brake is completely automatic.

Your wire may be layer-wound by adjusting the spindle speed to correspond with that of the traverse. An automatic torque control starts the machine smoothly and slowly to prevent the breaking or stretching of wires.

The Davis Take-up unit is designed for adjustable speed ranges of 75 to 300 F.P.M. or 75 to 1200 F.P.M. A built-in tachometer indicates the speed.

TRAVERSE MOTOR 110 VOLTS—OTHER VOLTAGES MAY BE HAD TO MEET YOUR SPECIFICATIONS

DAVIS EQUIPMENT

DAVIS ELECTRIC CO. WALLINGFORD, CONN., U.S.A.

HARNESS TESTERS • PAY-OFFS • TRAVERSES

SPARK TESTERS • SPOOLERS • TAKE-UPS • CAPSTANS

for strong, tough ACSR cores

specify Pittsburgh Wire

Made especially for reinforcement of stranded aluminum electrical conductors, Pittsburgh A.C.S.R. Core Wire has the high-tensile strength, the toughness and the heavy uniform galvanized coating to enable you to make the best possible cable.

With this special wire, you get the benefit of the years of experience of one of the largest wire mills in the world. It has an inherent quality that stems from the selected high carbon, open-hearth steel—the uniformity of gage—and the tight adherence of coatings that will work flawlessly in your stranding and closing machines. Available in diameters 0.1878″ to 0.0525″. For information on how to order, write today to Department WWP, Pittsburgh Steel Company, Grant Building, Pittsburgh 30, Pennsylvania.

Pittsburgh Wire

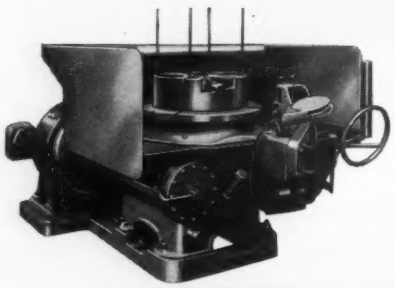
a product of **Pittsburgh Steel Company**

Pittsburgh, Pa.

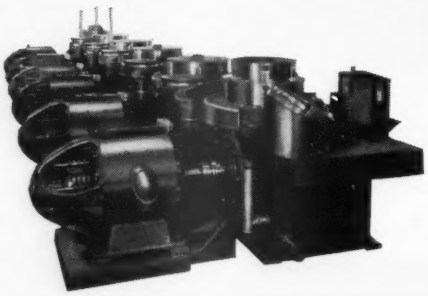
From the finest wire →

to the largest bar

VAUGHN® Cold Drawing Equipment

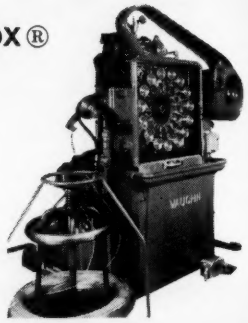


MOTOBLOC®



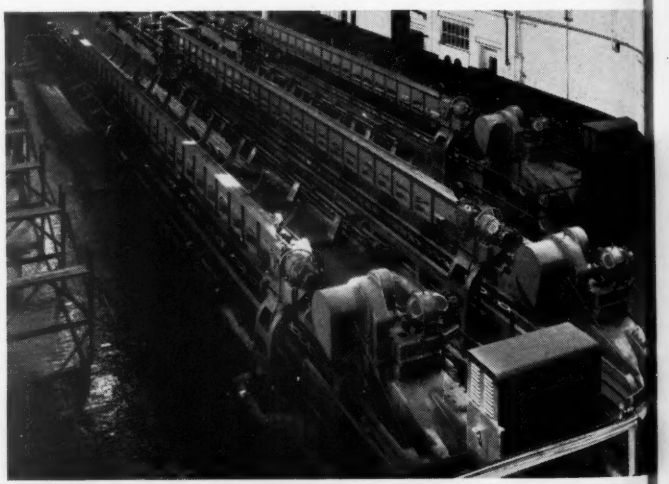
MOTOBLOX®

RINGBLOX®



CONTINUOUS MACHINES

DRAWBENCHES



V®

Whatever your cold-drawing requirements call for in production, you can be sure of finding Vaughn Machines that are *right* in type, size and capacity to do the job best, at lowest cost. Let our broad experience assist your planning—now!

"Quick on the Draw"

THE VAUGHN MACHINERY CO.

Cuyahoga Falls, Ohio, U.S.A.

COMPLETE COLD DRAWING EQUIPMENT . . . Continuous or Single Hole . . . for the Largest Bars and Tubes . . . for the Smallest Wire . . . Ferrous, Non-Ferrous Materials or their Alloys.

Magnus

The Sign of Good Drawing...

For more than 30 years the word "Magnus" applied to a wire drawing compound has been a guarantee of good drawing . . . and often uniquely good drawing. More often than not, Magnus pioneered the new compounds that are now in standard use . . . leading to faster draws, better finished wire, lower drawing costs and longer die life.

But while you can apply one or more items in the regular Magnus line to your volume production, there always are special problems in wire drawing that call for highly specialized and cooperative research. We'd like to work with you on any of these difficult drawing problems that are giving you trouble. Not only to help you solve your specific difficulties . . . but to see if, in solving particular drawing problems, we can develop improved compounds with broader fields of application. We know this is possible, because not a few of the Magnus materials which are speeding wire production today evolved from similar programs of tackling specific drawing problems.

Work now in progress in the Magnus research laboratory may very well fit into one or more of your drawing operations where difficulties remain to be overcome. May we hear from you?

MAGNUS CHEMICAL COMPANY, INC.
188 South Avenue, Garwood, N. J.

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Magnus

CLEANERS • EQUIPMENT • METHODS

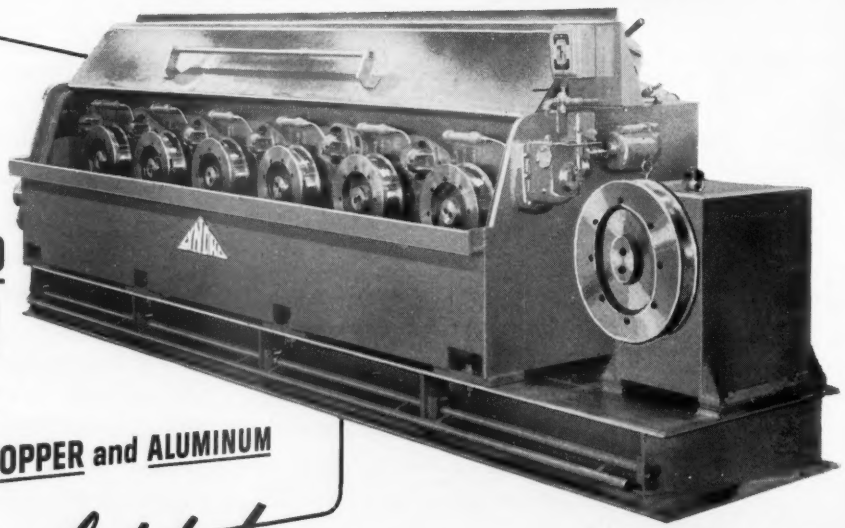
now better your production with...

an indisputably *helpful* **improvement**

for faster processing of non-ferrous materials...

A NEW LINE OF HEAVY DUTY TANDEM ROD BREAKDOWN MACHINES...

...especially for COPPER and ALUMINUM



helpful **because** of finishing speeds as high as 5,000 feet per minute and rod size entries as heavy as ½" in soft copper rod

OTHER FEATURES—HIGHLY EFFICIENT BLOCK DRIVES INCORPORATING PRECISION BUILT HERRING-BONE AND CONE WORM GEARS • SAFETY INTERLOCK FORCE FEED LUBRICATION • NEW ADJUSTABLE DIE HOLDERS • TANDEM TYPE ROLLS • HARD WEARING BLOCK SURFACES • PNEUMATICALLY CONTROLLED ONE PIECE COVER ELIMINATING MANUAL OPERATION • SPEED SELECTION POSSIBLE WITH A. C. DRIVE MECHANICAL TRANSMISSIONS OR D. C. DRIVE • BUILT FOR EASE IN STRINGING • FURNISHED WITH 22" COILER BLOCKS AND STRIPPERS IF REQUIRED • AVAILABLE WITH FROM FOUR TO TEN DIE POSITIONS

SYNCRO MACHINE COMPANY

Machinery for the Wire Industry

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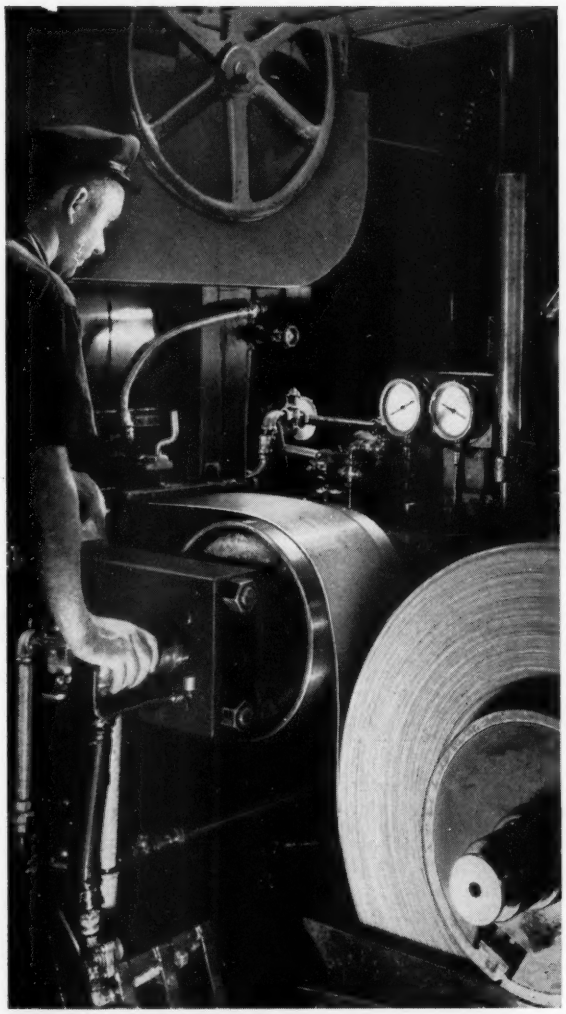
If desired write us for further information—at no obligation, of course

SPRING STEEL



Roebling Cold Rolled Spring Steel brings fewer machine stoppages . . . fewer rejects

YOU SAVE MONEY with Roebling Cold Rolled Spring Steel because it's of absolutely uniform quality. Every inch is just like every other inch, dimensionally and in physical properties. Service records show that it cuts down preparation time . . . gives you a better product and better production. And Roebling Cold Rolled is made annealed, hard rolled untempered; scaleless tempered; tempered and polished; tempered, polished and strawed; and tempered, polished and blued.

Large quantities of Roebling's specialty wires — flat, round and shaped — are required today in the national rearmament program. Roebling, however, is one of America's largest manufacturers of specialty wires, and we shall always do everything possible to meet your requirements. John A. Roebling's Sons Company, Trenton 2, New Jersey.

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Atlanta, 934 Avon Ave ★ ***Boston,*** 51 Sleeper St ★ ***Chicago,*** 5525 W. Roosevelt Rd ★ ***Cincinnati,*** 3253 Fredonia Ave ★ ***Cleveland,*** 701 St. Clair Ave, N.E. ★ ***Denver,*** 4801 Jackson St ★ ***Detroit,*** 915 Fisher Building ★ ***Houston,*** 6216 Navigation Blvd ★ ***Los Angeles,*** 216 S. Alameda St ★ ***New York,*** 19 Rector St ★ ***Odessa, Texas,*** 1920 E. 2nd St ★ ***Philadelphia,*** 230 Vine St ★ ***San Francisco,*** 1740 17th St ★ ***Seattle,*** 900 1st Ave, S. ★ ***Tulsa,*** 321 N. Cheyenne St ★ Export Sales Office, ***Trenton, N. J.***

Davis-Standard 6"
Thermoplastic Extruder

DAVIS-STANDARD EXTRUDERS

...ENGINEERED TO YOUR OPERATING NEEDS

Every feature of our extruders for rubber or plastics is the result of long experience in the extrusion industries and intimate knowledge of production problems.

Davis-Standard "Stream-Flo" insulating heads permit the most efficient operating velocities. All head equipment is compact, accessible and easy to clean. For thermoplastic applications, sectional-type cast steel cylinders afford precise temperature control as well as maintenance advantages. Each section has wear and corrosion-resistant liners.

Another exclusive feature of Davis-Standard plastic extruders is the "Therma-Fin"* heating jacket, with range-type tubular heating elements and stainless steel cooling coils cast into aluminum cooling fins.

*Patent Pending

With this construction any desired temperature condition may be obtained.

Feed section is a separate casting. Stock screws are of special steel alloy, normally bored for water cooling. Variations for depth and lead are available for different compounds. Drive is V-belt or flexible coupling to enclosed worm reduction gear. Davis-Standard machines are furnished complete, including control panel, ready for installation.

Our engineers will welcome the opportunity to work with your engineers on your problems. Our extensive experience in custom-built equipment will fit the installation to your exact requirements.

EST. 1848

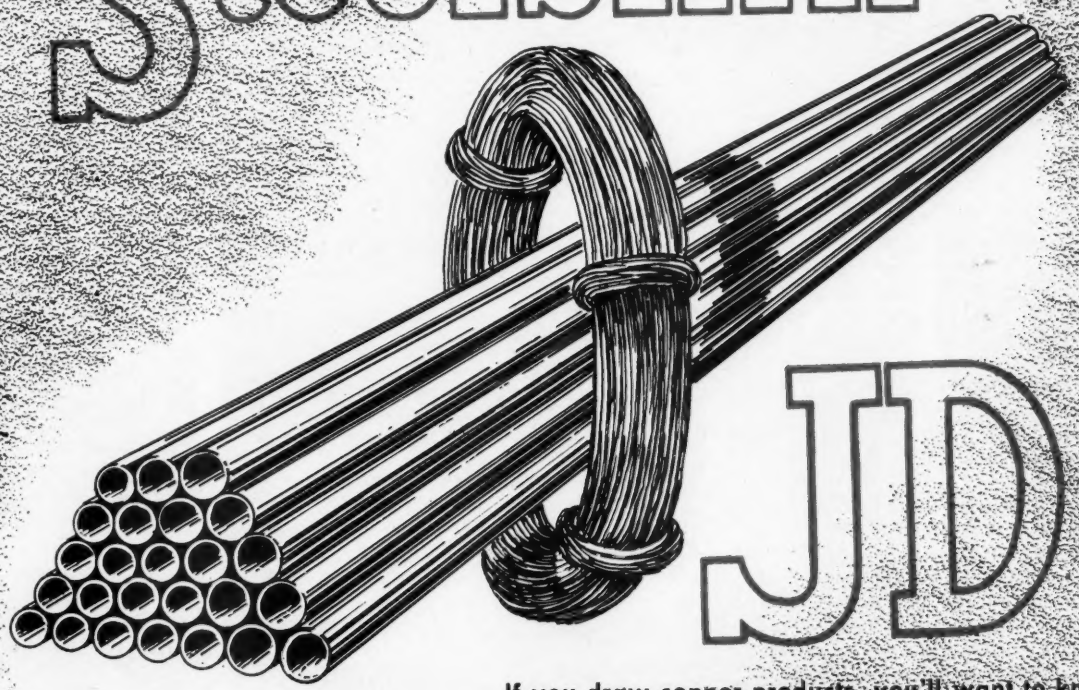
THE STANDARD MACHINERY COMPANY

MOLDING PRESSES AND EXTRUSION MACHINES
WORLD'S LARGEST MANUFACTURERS OF CUSTOM-BUILT EXTRUSION MACHINES
14 WATER STREET, MYSTIC, CONNECTICUT
Export Office: Ballagh & Thrall, Independence Square, Philadelphia 6, Pa.

NEW

For drawing COPPER and COPPER-COATED wire and tubing . . .

Steelskin JD



If you draw copper products, you'll want to know more about STEELSKIN J. D. Satisfied users of this new Steelskin Product include such companies as Chase Brass and Copper Co. and General Cable Company.

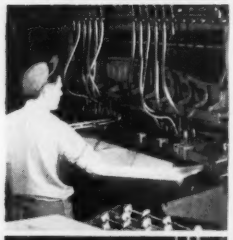
Write today for further information on Steelskin J. D.

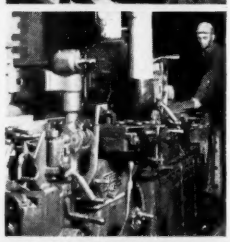
Steelskin LUBRICANTS

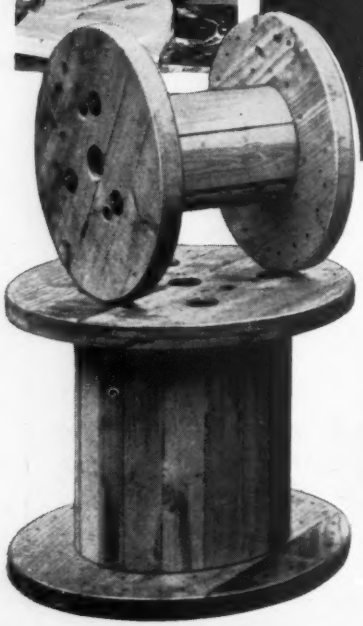
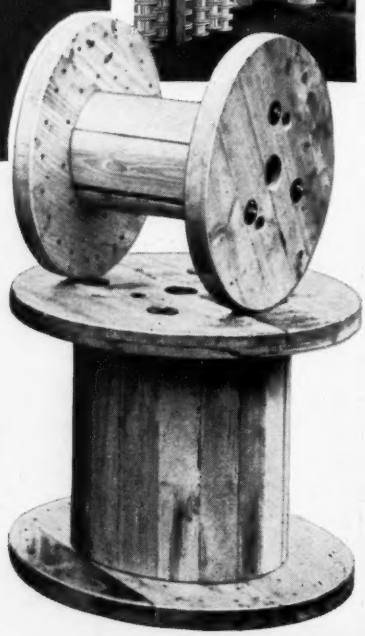
R. H. MILLER

Company, Inc., Homer 1, N. Y.

ARE YOUR REELS PRODUCED ON A FAST-MOVING PRODUCTION LINE ?





BRIDGE
MANUFACTURING CO.
HAZARDVILLE, CONN.
Phone Thompsonville, 3375

Fastest Process Annealing FOR COILED STEEL WIRE

- ✓ **Annealing cycles accomplished in minutes rather than in hours**
- ✓ **50% lower equipment cost**
- ✓ **less floor space**
- ✓ **no scale, decarburization or other atmosphere effects**

On-the-job production figures prove that no other method compares with an Ajax Electric Salt Bath Furnace in speed, uniformity, cost saving, and general all-around efficiency in process annealing all types of steel wire as well as aluminum, copper alloys and silver alloys.

Heating cycles are far faster. Absolute uniformity is assured. Thanks to the exclusive Ajax electrodynamic stirring action, the temperature does not vary more than 5°F. *in any part of the bath.*

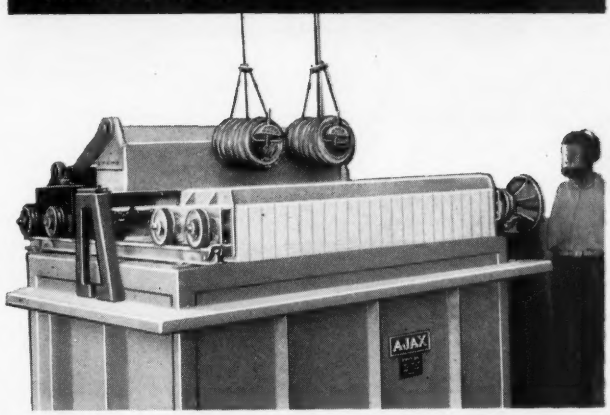
The Ajax Salt Bath eliminates all atmosphere with its accompanying problems of oxidation, pitting and decarburization. Preservation of metal surface is assured. Equipment cost is much lower —and the Ajax handles more work for a given amount of floor space than any other method. Ajax Bulletins 62 and 63 gladly sent on request.

LOW- AND HIGH-CARBON STEELS

This typical Ajax installation process anneals 1200 lb. 18-gauge wire an hour in only 58 feet of floor space.

STAINLESS STEEL

Annealing fine gauge nickel-chromium wire at 1950°F. Clean wire surface eliminates conventional pickling operations.



- **TOPS for WIRE PATENTING, too!**
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"You may have to stand outside!"

REMEMBER Aesop's fable of the camel and his master--how the kind master allowed the shivering beast to put into the tent first his head, next his shoulders, then his forelegs!

And then the camel said, "Master, I think I ought to come wholly inside," and crowded in. Immediately he said, "There is hardly room for us both, so I think it would be better for you to stand outside so I can turn around and lie down." And without further ado, the camel kicked the man out and took the entire tent.

Men have heard this story for 2,500 years--repeatedly have seen how it illustrates what happens when one man or group of men gain power over others. Men saw it happen in Italy and Germany when Mussolini and Hitler took over. Men saw it happen in Russia.

Even here in America a similar trend is evident. Powerful influences overlook no opportunity, through political manipulation, central controls and bureaucratic regulations, to intrude more and more in our private lives. The situation demands continual, alert watchfulness by all citizens who believe in individual liberty and freedom, to prevent this camel of big government from creeping further into the tent. Before we realize it, "we, the people," the master, may find ourselves "standing outside." In America it is government, which is the servant of the people.

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The Wire Outlook

As this is written the Republican Convention has ended and that of the "ins" about to begin. Even at this early point Democratic candidates are vying with one another to exceed in promises to give away what isn't theirs in money and favors to special interests in efforts to play upon the ignorance, prejudices and greed of the masses. Until Election Day the sword of Damocles will be dangling over the head of the Nation.

The issue is not one of party lines, but the maintenance of freedom in America and of democracy throughout the world. This campaign may well prove to be the last stand of civilization. Should the Republican candidate not be elected in November, the movement of the world toward another Dark Age will have been precipitated. For citizens it is not now a question of being Democrats or Republicans—it is one of Americans voting to save what is left out of the wreckage wrought by an entrenched and corrupt demagogic oligarchy in Washington.

This group has been steadily moving the country toward Socialism. Socialism is akin to Communism and inevitably must lead to it, with all the regimentation, dictatorship, terrorism and the loss of everything that free men hold dear, with a Hitler or Stalin snuffing out the last vestiges of liberty. Many eyes will be blinded by the false appearance of prosperity and many will be lured into a false sense of security by the promises and assurances of the demagogues. More than ever before, this is the time for Americans to rise in their might and through the ballot smite down these false prophets. The Republican nominee is indeed setting forth upon a critical crusade, upon the success of which may well depend the future welfare of every man, woman and child in the United States.

The settlement of the steel strike makes one question, "Who gained what?" Industry has lost, the public has lost, the Government has lost—the wages foregone by labor can never be made up. Murray may have won a Pyrrhic victory—as he will discover in the long run when public opinion forces the passage of more stringent labor laws. The blame must rest squarely on the shoulders of his comrade, Harry, even though he may have been prompted by unsound counsel.

A new tone of confidence by business is being evidenced. Fear of a slide seems to be on the wane, based primarily on sharply increased government spending, the high rate of building construction, industrial and private, and big road building projects. In 1953, however, many observers see an adjustment recession toward the end of the year—but not a depression. To this end inventories are being kept low and efforts being made to build cash reserves as a cushion against it. A great deal of business thinking is being devoted to the problem of how to trim prices to stimulate consumer buying, yet make a profit. Buying even now is steady and free in most lines, which helps to keep business good. People have become generally convinced that prices will not go substantially lower.

Rod stocks have been shrinking rapidly and it will be some weeks before new stock begins flowing to fill in the gap, since during the strike steel output had dropped to 12½% of capacity. Demand for most types of wire has increased with little additional volume possible. Inventories of high carbon stock is generally better than of low carbon.

The after-strike recovery will be fast and steel production will run at high levels into next Spring. The loss of 15,000,000 tons or so of steel cannot be made up over-night. The de-control timetable has been set back by the strike and the day of having to go out and sell the products of the mills deferred

These are momentous days!

—from the Editor's Desk

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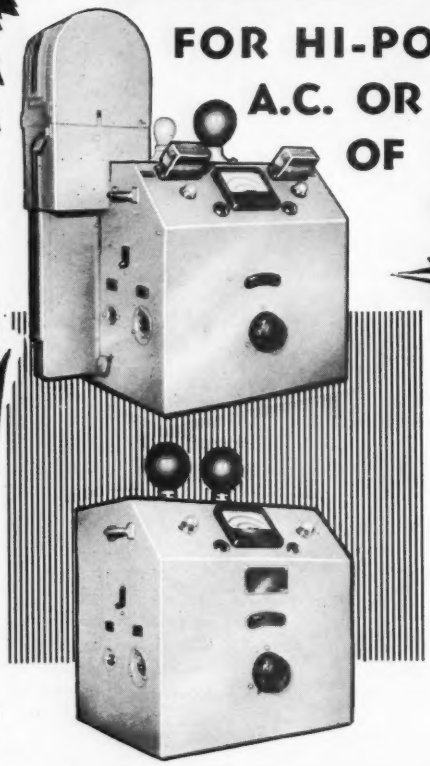

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- Voltmeter indicates actual voltage applied to wire being tested.

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DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING

Vol. 27 AUGUST, 1952 No. 8

THE EVOLUTION OF THE MODERN HOT-DIP GALVANIZING POT

by Wallace G. Imhoff, President
The Wallace G. Imhoff Company
North Highlands, California

This paper was delivered before the Pacific Coast Regional Meeting of the Wire Association in Los Angeles, California, on June 13, 1952. In it the author describes various types of pot designs used, showing their progressive changes down to the present time. This paper coupled with a series of galvanizing articles that have appeared in the preceding four issues, presents one of the most comprehensive treatises on wire galvanizing to have been published anywhere.

Early Problems Of Galvanizing

All things improve because of specific inherent weaknesses. The weaknesses of early hot-dip galvanizing pots can be primarily classified as:—

1. **Early galvanizing pot failures.**
2. **Very high dross production.**
3. **Difficult operating conditions.**
4. **High costs.**

★ ★ ★

It seems almost incredible that only thirty-two years ago the galvanizing operations of one of the largest sheet metalware companies in the United States were conducted by manipulation of jugs, bottles and paper bags full of mysterious materials known only to the galvanizing foreman; that these mysterious materials were his own property, carefully guarded by him, and put in his locker every night; and that at the end of every month he always submitted a little bill of his own, over and above his salary, as "Materials Furnished by Me". This bill ranged from twenty-five dollars up to as high as one hundred and fifty to two hundred dollars, depending on how smoothly the galvanizing shop operated that month.

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High Operating Costs; Frequent Pot Failures

High operating costs coupled with frequent galvanizing pot failures developed a pressure from management for a better knowledge of the causes of so many pot failures with the result that an association, or group of galvanizers banded together, and placed a Fellowship on Galvanizing in The Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa., covering a five year study and research period from 1920 to 1925.

Early Hot-Dip Galvanizing Pots

It must be kept in mind that in the early days of hot-dip galvanizing, "the right hand did not know what the left did"; the industry was in the state where the pickler kept at his pickling tanks, and the galvanizer stayed at his pot, and each blamed the other for all the galvanizing troubles. Advancing one step higher, each galvanizer was so jealous of his competitors, that only the best friends ever were allowed in the other fellow's plant; and advancing still another step higher, few if any galvanizers ever went from one field to another to see the kind of pots and equipment used in other fields besides his own. That would have been clearly a waste of time and money, and of course nothing of value in the field of wire galvanizing could be found that could be used in the metalware field of galvanizing. Then advances in pot makers' equipment and methods, this new thing called "Research", helped to change all that.

Different Kinds Of Pots In Different Fields

One of the very first things that a little scientific knowledge revealed was that there were different kinds of pots used in different fields of galvanizing. The shapes were different; the sizes were different; the construction was different; and in many instances the same kind of a pot might be worked lengthwise in one plant, while in another plant the production passed through the pot crosswise. The depths were differ-

ent; the side thicknesses were different; and even the basic construction and design of the pots were different. And finally, the material was different; iron in some pots, and steel in others, with even a variation in the kinds of iron and the kinds of steel. So the whole problem instead of being a simple one, was found to be a complicated maze of many variables, making it extremely difficult to even know where to start. And on top of this was the human problem, that galvanizing was considered a business, rather than a very intricate and complicated science, based on very definite and specific scientific principles.

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Fuels Vitally Affect Pot Life

Most pots at the turn of the century were heated with coke as a fuel. It was the practice to use the cheapest local fuel when possible. For example, in the Pittsburgh District many sheet pots were heated with coal fuel on grates in an "Old Dutch Oven" design. In the Allentown District, where hard coal was plentiful, the wire pots were heated with fine hard coal fuel. Natural gas was plentiful in the Pittsburgh District so that a few furnaces used this kind of fuel, and in and around New York City where oil was shipped for export, many furnaces used oil fuel. The company brick-layer in almost all cases designed and built the galvanizing furnaces because only very large plants could afford a plant engineer. Thus the company brick-layer held the spot-light when the galvanizing pot failed prematurely, or had a long, good production life. Knowledge was so localized and experience was so concentrated in the hands of the brick-layer and the galvanizing superintendent, or foreman, that little knowledge was available to management. In 1916 Charles E. Richardson presented a paper before the Pennsylvania Gas Association, at Easton, Pa., in which he described "THE PROCESS OF SURFACE COMBUSTION" and the surface combustion burner. Figure 23, on page 28 of his paper shows a picture of "A SURFACE COMBUSTION GALVANIZING MACHINE FOR PRODUCTION OF GALVANIZED IRON." The Surface Combustion Company thus pioneered the start of real engineering, as applied to hot-dip galvanizing pots and furnaces. They quickly discovered that the kind of fuel used vitally affects the galvanizing furnace design, and that the galvanizing pot design and construction is vitally affected by the field of galvanizing and the kind of work to be put through the pot. This was the beginning of bringing order and system into galvanizing, and the start of the elimination of the confusion, existing at that time.

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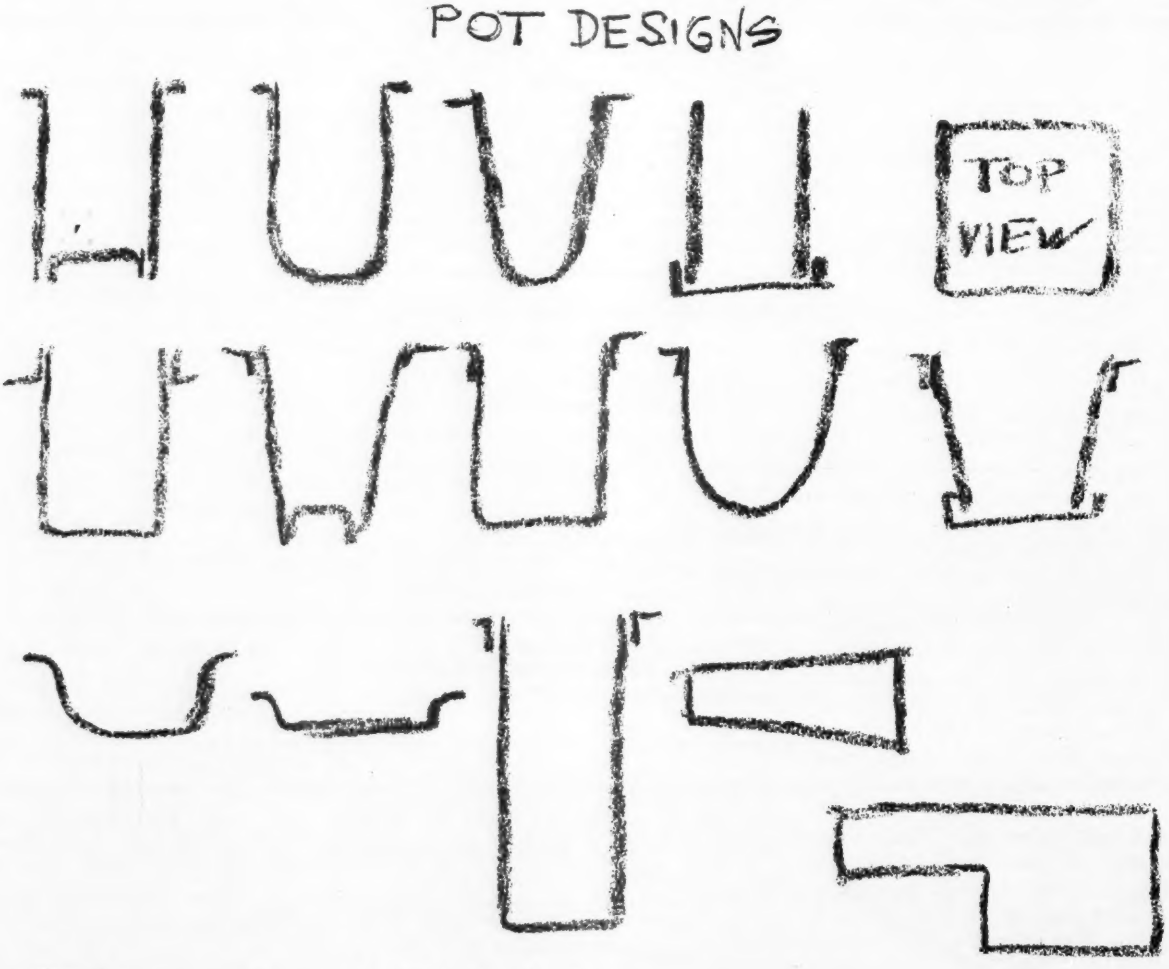

Figure 1.— . . . . . .

Furnace Design Affected By Kind Of Fuel

The shape, the kind of pot, and its construction, are all affected by first the field of galvanizing; second, the kind of fuel used; third, the furnace design; and fourth, and perhaps, most important of all, the kind of pot the plant has, or the manager thinks they should have for the new pot. One thing must be remembered, namely, the clock must be turned backwards to the cruder methods and the poorer equipment available to the pot makers. One of the oldest pot makers says, "We can recall the old hammer-welded pots in which the plates were formed to shape and the kettle held together with clamps while it was placed in the forge fire, which was usually coke, and a length of seam from 12" to 18" was heated to a welding heat, after which the entire assembly was withdrawn from the forge and the seams were hammered by hand. The process was repeated until all seams were completed. A very slow and laborious process. We then converted to natural-gas-fired forges which were much cleaner, the heating was more uniform, and sulphur was not a problem, as was the case with coke and by-product gas. The hammering continued by hand for some years and then pneumatic hammers were developed which saved much labor. At the same time, riveted pots were being produced and our actual experience indicated fewer seam failures with the forge-hammer-welded pots. For the hammer-welded construction, power driven carriages were developed to carry the pot assembly, power actuated gas-fired heating forges were arranged to heat both the inside and outside of the seam to be welded and with the universal pneumatic hammers, production became almost a mechanical procedure.

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"**All** the while, we were experimenting with arc welding. We installed one of the very early arc welding units in Ohio and in which a carbon arc was used. You are familiar with the development of arc welding in galvanizing pot construction until today, all of our pots are fabricated by the submerged arc process, either by hand or automatic welding. Construction has been simplified and a change in design is no problem.

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"**The** general shape or construction of our galvanizing pots does not seem to have been altered for some years although we do note that some customers are gradually increasing the capacity of their kettles. Generally the old designs still hold; that is, the rectangular pots for the sheet mills and the long rectangular pots for the pipe and structural galvanizers while the wire and job galvanizers use any number of shapes of pans and pots. Practically every galvanizer has his own ideas of proper shape and size and his conclusions have no doubt been reached from experience.

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"**We** learn of very few pot failures in this day and we believe that oil and gas firing has been the answer with its resulting ease of control and uniformity of heating. We realize that any mechanical control can fail and any mill can roll a laminated plate, so that we have not arrived at perfection by any means. We are of the opinion that there is too little realization of the fact that a galvanizing kettle fails from the inside and while spelter temperature may not be excessive, rate of production required more heat transfer than the pot will stand and results in early failure.

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"**We** are still producing the old V-shaped pots for a number of customers and in the past few years have had several customers change their design from the rectangular pot to the old V-shape.

★ ★ ★

"**We** are being called upon to produce heavier and larger pots each year until we are approaching the limit of our ability to handle the pots as a unit. We also note a trend to add slab feeding troughs to the pots and some customers are specifying that the entire pot be stress-relieved as a unit after welding."

Research Follows Side By Side With Practical Advancements

By simply looking at the shapes, sizes, and kinds of hot-dip galvanizing pots, it might be thought that no improvements have been made over the years. The contrast is vividly brought out in just one of the above sentences, namely, "We learn of very few pot failures in this day." The scientific knowledge learned from painstaking research has included such items as base metal for the pot, correct temperature operating ranges, correct side thicknesses in relation to production and heat application, a complete understanding of the by-product dross, and the formation of the zinc-iron alloys, a much better understanding of operating conditions, greater advancement and understanding of the combustion engineering of hot-dip galvanizing furnaces, and many, many other items that cannot be seen outwardly, such as the function of the metal lead in galvanizing pots, along with automatic controls and better furnace designs. It is very important to know and understand these advances, which are the foundation of today's fewer pot failures and better operating conditions.

Base Metals For Galvanizing Pots

Years ago when the number of failures of galvanizing pots were sometimes so frequent as to be heart-breaking, and when very little was known about galvanizing principles, the first thought was to blame the base metal used in making the pot. Fire Box Steel and Boiler Rivet, or Flange Steel were the standard materials used, but the pressure due to pot failures demanded a full investigation of the action of molten zinc upon all commercial metals and alloys. The research investigations showed clearly and very definitely and specifically, that Fire Box Steel and Flange Steel were by far the best practical metals to be used in galvanizing pot construction. (See Fig. 2 page 772)

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The dissolving action of molten zinc, at and above hot-dip galvanizing temperatures, was carefully studied on such metals as Monel, nickel, chrome-nickel alloys, Calite, Resistal, Thermalloy, various types of irons, various kinds and types of steels, including the Fire Box Steel and Flange Steel, along with other materials such as vitreous enamel, silica in the form of quartz tubes,

and various other metals of one kind or another including copper and copper alloys, silicon steels and alloys, Duriron, etc. When the results were all known it was found that Fire Box Steel was by far the best base metal to use in the construction of hot-dip galvanizing pots. Research verified practical experience and settled pretty well for a long time to come, the metal to use in galvanizing pot construction.

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Another item pretty definitely settled was the fact that when pots were welded, arc welding, and not acetylene welding, should be used. It was found that when acetylene welding was used the steel picked up carbon, and in one case the pot failed at the welds after only three days of operating service. (See Fig. 3).

Mechanical Treatment Of Metals Important

So many scientific things are known that cannot be seen outwardly in galvanizing pot construction. For example, it was found that the mechanical working or treatment is an extremely important item in the resistance of the metal or alloy to the action of molten zinc at and above hot-dip galvanizing temperatures. Cast metals with open grain structure are easily attacked and destroyed, while mechanical working, such as rolling, hammering, forging, etc., all tend to give a metal structure that greatly resists the action of the molten zinc.

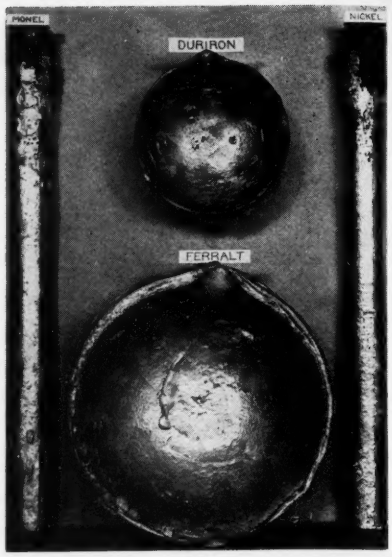

Fig. 2.—Base Metals for Galvanized Pots.

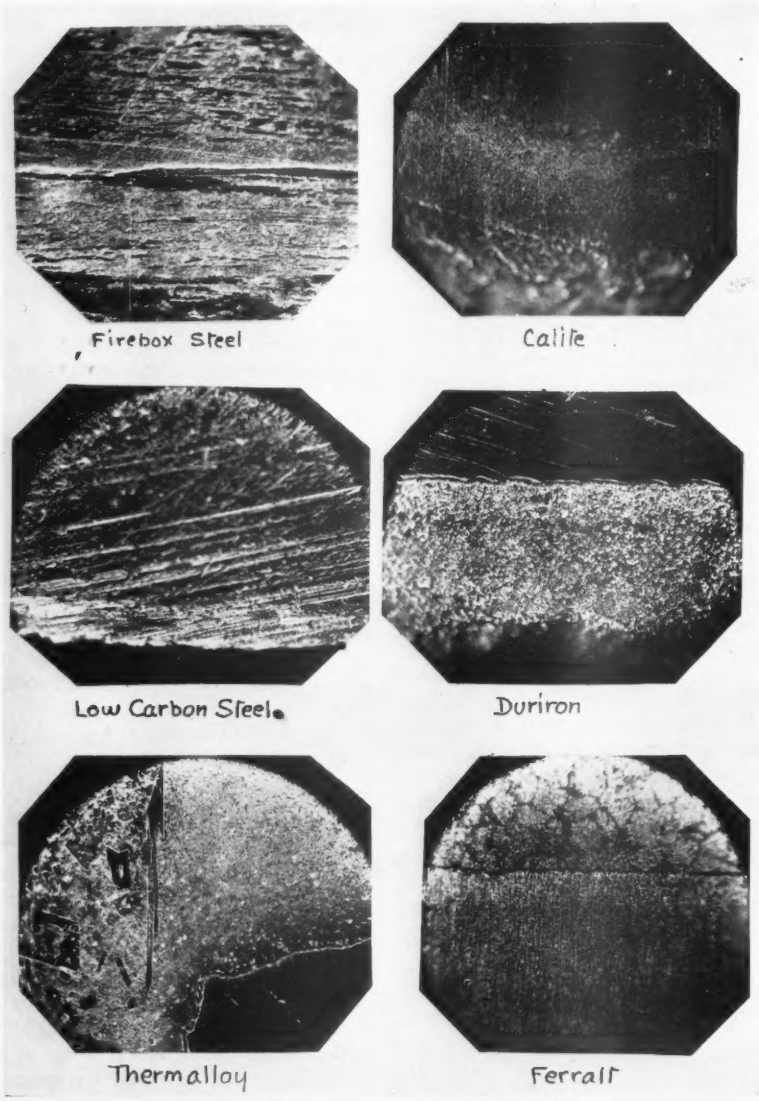

Fig. 3.—Grain Structure of Base Metals

Design And Construction Of Pots

Some of the early pots were cast iron and, of course, they did not last long. A few days, a few weeks, or a few months was a good life for pots that were made of cast metals. The basic reason for the easy pot failures was due to the formation of graphite and the open structure of the metal. There are some modern cast pots of nickel cast iron that have given good service as straight melting pots for zinc, such as for die casting metal and like uses. The nickel tends to keep the carbon in the combined form which gives a tight hard metal texture. In addition to the very fine grain and hardness, the surface tends to be smoother and resist the action of the zinc. These pots are also given an iron-oxide-sodium silicate wash over the surface, which is baked on before the zinc is put into the pot. This gives an insulating surface similar to grouting or clay washing, or the limed surface of the molds of a pig machine in casting molten iron into pigs.

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There were many designs and methods of pot construction used in early galvanizing pot manufacture. Bodies were butt-welded and lap-welded with the bottoms welded or riveted in. Many of the early pots were all riveted; some were U-

shaped; some were V shaped; some rectangular; in fact there were many shapes. The important thing to note too was that each field of galvanizing had developed its own shape of a pot. Since few galvanizers knew or understood the basic principles required for heat application to galvanizing pots, many freak designs of pots showed up from time to time. One pot was a combination of a small trough, long enough to handle pipe, joined on to a deep large square pot for handling an entirely different type of work. The heating problem had not been taken into consideration and the pot failed in less than three months. Another pot was large on one end and tapered down to a small section on the other end. Again the pot had a short life because of neglecting to take into account the heating problem.

Progress In The Fabrication Of Wire Galvanizing Pots

Another very large galvanizing pot manufacturer says—"The first Wire Galvanizing Pots were of riveted construction. While many of the Riveted Type Galvanizing Pots gave a fair life, they were very uncertain as you were always liable for leaks in the riveted joints. Forge welding was developed about 1895 and about 1910 the first Forge Welded Galvanizing Pot was produced. This method was entirely manual and the welds were produced by using heavy sledges. This was a big improvement over the Riveted Type as the previous trouble from leaks in the riveted joints was eliminated. In 1920 the Hammer Welded Galvanizing Pot was first produced. With this method the plates were heated on a gas fired furnace and welded together by pneumatic hammers. This method of welding developed a greater percentage of fusion and retained the full thickness of the plates. In 1929, after several years of research with various types of coated rods, the first Electric Welded Galvanizing Pot was offered to the trade with welds guaranteed.

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"In regard to the grades of materials used in the construction of Galvanizing Pots we have always used an Open Hearth Steel Plate, The first pots were fabricated from Flange quality steel, Firebox quality steel, Special Open Hearth Steel, Armco Ingot Iron, Locomotive Firebox Steel and for the last fifteen years Special Locomotive Firebox Steel for galvanizing kettle construction and rolled to an analysis best suited to withstand the action of molten spelter."

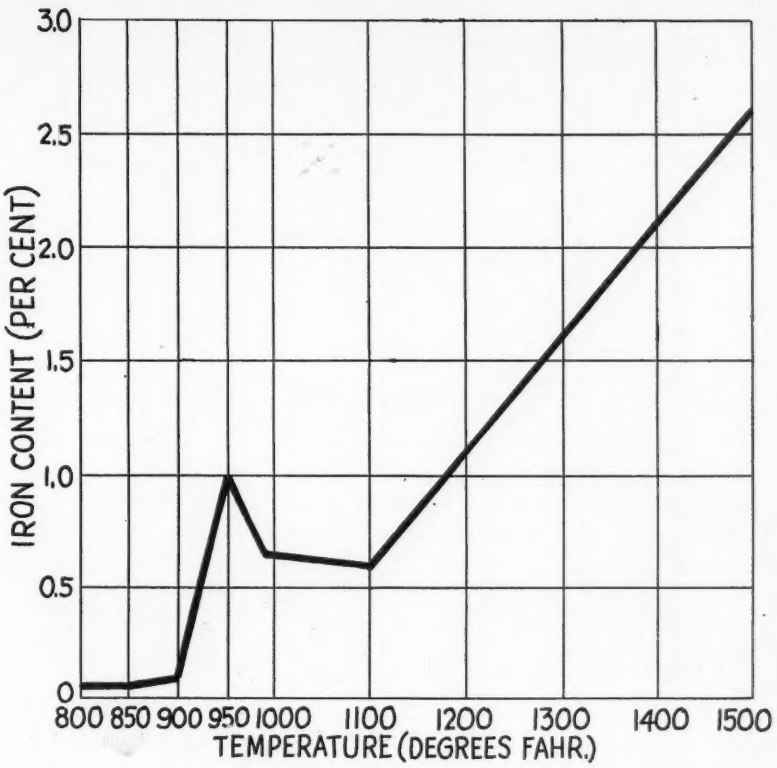

Fig. 4.—Temperature—Iron Dissolved— * * * * * * * * * *

Side Thickness

At one time an inch and a quarter was almost a standard side thickness for galvanizing pots. It can be readily seen that when cost is a factor one of the easiest and quickest ways to get a low price is to simply put a light side on a big pot. A typical example of this "lowest price quotation" to get the business was seen in the purchase of a large 30-foot pot. The top price was $2240.00; the middle price was $1850; and the low bidder was $1150. Experience is a hard task-master, and in this case it was found the high bidder would furnish a 2″ side thickness; the middle bidder, 1½″ side thickness; but the low bidder furnished the pot with only a 1″ side thickness. The setting cost $15,000; the pot lasted about four months. Thus it is seen that good engineering requires definite engineering tables to give the correct side thickness for the production going through the pot, to give the longest pot life. These tables have been published and have been used over and over again to give a side thickness that will give a minimum pot life of at least three years or longer.

Temperature

One of the very first things investigated in the research work was the relation of the attack of the molten zinc at various temperatures. It was found that up to 860° F. there is very little attack of the molten zinc on the pot. Above 860°F. the action becomes more marked up to 875° to 880°, when the action increases considerably. From 880° to 900° the action becomes more and more violent until at 900° there is a turn upward that indicates from here on a most violent action and that the pot life is now only a question of time; the plate thickness will dissolve. (See Fig. 4).

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Investigations on the operating temperatures also showed how the action not only destroys the pot, but it also increases dross production by leaps and bounds until the whole bath is converted into zinc-iron alloy if something is not done to change the temperature conditions. While the action goes on the change in crystal structure of the zinc-iron alloy makes it hard, heavy, and dense, increasing the iron content, and decreasing the zinc, which further contaminates the bath and creates more dross. The dross being sandy and dry lies up against the pot side, accumulates heat because there is no heat transfer and builds up the temperature higher and higher until the pot is eventually destroyed.

Combustion Engineering

One of the main causes of so many early galvanizing pot failures was due to the fact that the plant bricklayers were not combustion engineers. This is no reflection on them because the combustion engineering of hot-dip galvanizing furnaces and pots is one of the most difficult in the field of combustion engineering. At first the furnace designers thought they did not have to know or understand much about galvanizing operations and principles, but today, the best combustion engineers know that to obtain the longest pot life and the best operating service and conditions, they must not only know combustion engineering, but also know much about galvanizing engineering, and then combine both when designing a galvanizing furnace.

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Of all causes and weaknesses tending to early pot failure, the combustion engineering was probably the most to blame. Most coke-fired pots developed hot spots; it was not until coke went out as a fuel that a really scientific design for a coke-fired galvanizing pot was developed. In one plant the new design gave ten times the production life of any previous furnace ever used. The coke fuel was on grates at the bottom to keep the fuel out of the ashes, and had grates against the side of the pot to distribute the heat uniformly over the sides of the pot. This new furnace design for coke-fired pots had a life of five years, and when the pot was removed the original side thickness of one and a half inches was only cut down to an inch and a quarter, with no spots of heat concentration. The pot could have been used from three to five years longer on the basis of the performance on the new furnace design which kept the fuel away from contact with the pot sides and heated only by radiation spread evenly and uniformly over the entire pot sides.

★ ★ ★

There were many other features of combustion engineering involved in successful heat application to galvanizing pots. For example, the size of the combustion chambers, the velocity of the gases and products of combustion, heating area, flue arrangement, and dozens of other factors such as stack location, balanced combustion, burner type and location, heat intensity, etc. One vital principle learned was never to heat on the dross line. And so modern galvanizing pots have a longer life because much more is now known about the combustion engineering of hot-dip galvanizing furnaces.

Depth of Pots

The dimensions of pots, and especially the pot depth has always been an important factor in pot life and service. Some of the early pots piled up the dross so high that the work went through it, and became covered with dross specks. About twenty years ago many pots were made deeper. This was for two reasons: first, to give more metal to carry the heat for more and more production without getting undue heat intensity on the pot side; second, the greater depth gave a large space for the dross to settle in and permitted more dross to accumulate with longer periods between drossing.

Refractory Materials As A Surface Protection

Research work has indicated that the only material that molten zinc cannot attack and eventually destroy is some kind of a vitreous material. All other metals and alloys are attacked and destroyed by molten zinc, with Fire Box Steel and Flange or Boiler Rivet Steel being the best practical metal to use. On December 22, 1925 the writer was granted U. S. Patent No. 1,566,749 for a vitreous lined hot-dip galvanizing pot. While the practical application of the patent was successful in very small galvanizing pots, it never became commercial because of the many difficulties encountered when attempting to apply a vitreous coating to the sides of very large hot-dip galvanizing pots. The causes of failure of this patent were not in the scientific basis for it, but in the practical difficulties in trying to apply the vitreous coating to very large containers with heavy steel plate sides up to 2½ inches thick. The conditions of practical application involved a temperature of 1550° to 1650° F., special conditioning of the steel surfaces before applying the vitreous material, difficult conditions of handling and shipping the pot to companies that did that type of work and other factors from a practical standpoint that prohibited the utilization of the discovered technical information.

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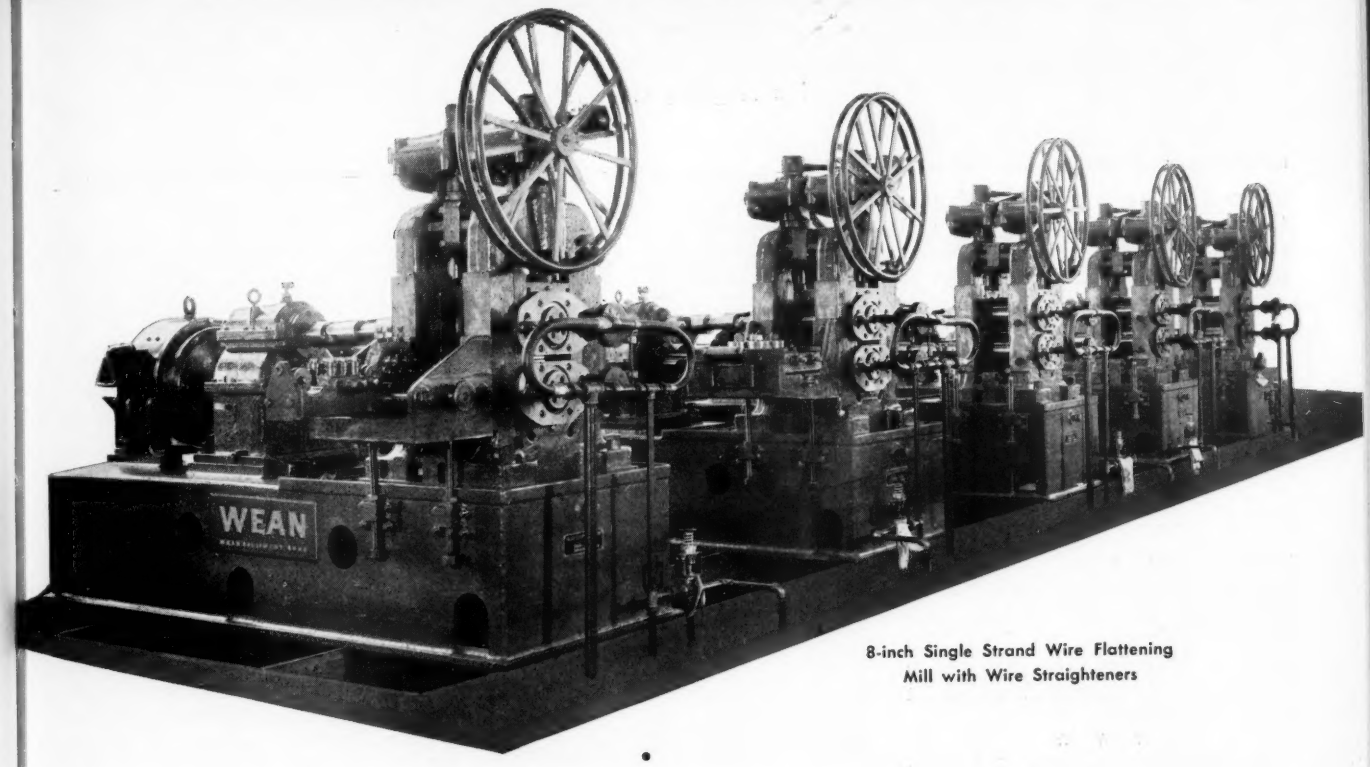
With the scientific knowledge as good as when discovered, it became a problem to determine just how to apply that knowledge. Recent discoveries have made it possible to use the scientific facts, namely, that molten zinc cannot attack silica or silicious materials, in a different way; it is believed now that the problems of temperature, plate warpage, distortion, handling, shipping of pots to another company for processing and other difficulties, are now completely eliminated by a new technique which utilizes the same scientific facts in a different way. A recent patent application calls for the application of a thin-lined vitreous refractory, cold, in much the same manner as metal lath is used in plastering the rooms when building a house. This method can be used to coat the entire inside of the pot, the upper half of the pot or even just a strip of the pot where the corrosion is usually the greatest. The new method overcomes all of the disadvantages of the first patent, while at the same time the scientific discovery remains the basis for the invention of a different process of application. The purpose of the

(*Please turn to page* 828)

Wean



8-inch Single Strand Wire Flattening Mill with Wire Straighteners

A COMPLETE ENGINEERING SERVICE FOR WIRE MILL INSTALLATIONS

Complete Installations for Electro Galvanizing, Hot Dip Galvanizing, Patenting, Tinning, Wire Flattening, Nail Galvanizing and Blueing.

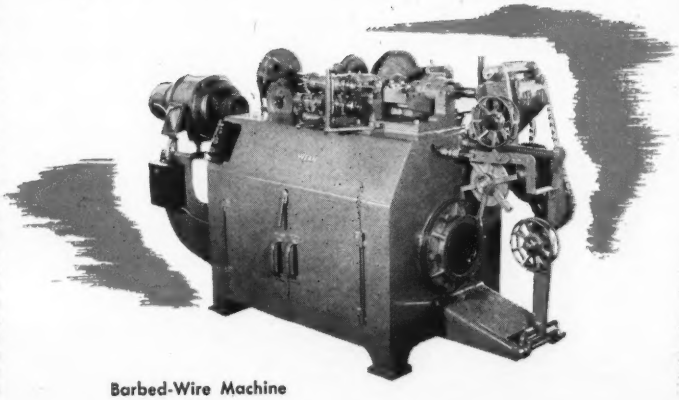
Complete Equipment for the Manufacture of Hexagon Netting, Hinge Joint Fence and Barbed Wire.

CHECK WEAN FIRST FOR WIRE MILL EQUIPMENT

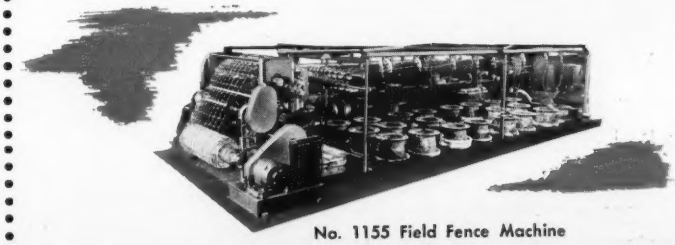
STRIP MACHINERY

Slitting Installations. Cut to Length Installations. Bearing Metal Coating Installations. Two-Hi Rolling Mill Applications. Strip Grinding Installations. Levelers, Uncoilers, Pinch Rolls, Shears for Strip Processing lines.

WEAN EQUIPMENT CORPORATION
22800 LAKELAND BLVD. • CLEVELAND, OHIO



Barbed-Wire Machine



No. 1155 Field Fence Machine

Wean *Equipment Corporation*
CLEVELAND, OHIO

Fiberglas Yarns—Their Qualities and Applications

by Paul L. Layton

Pacific Coast Division
Owens-Corning Fiberglas Corporation
Los Angeles, California

In this paper, delivered by Mr. Layton before the Pacific Coast Regional Meeting of the Wire Association on June 13, 1952, a summary of the characteristics and uses of glass yarns in the manufacture of electric wire and cable has been presented.

I would like to discuss with you the uses of Fiberglas in wire and cable applications. The development and practical utilization in 1938 of fine, flexible fibers of glass in yarn form has proven to be of major importance to wire and cable manufacturers. Fiberglas yarns are made from specially compounded, electrical grade glass and are drawn into extremely fine flexible fibers by a highly refined process. Basically this consists of forming small marbles 5/8" in diameter and remelting them in small, electrically heated furnaces. The glass fibers are pulled from 204 orifices at the bottom of the furnace. The size of the yarn is determined by the orifice size, heat of glass and speed at which it is pulled.

★ ★ ★

To give you some idea of the size of the filament, one marble will make approximately ninety-seven miles of filament (.00023").

★ ★ ★

The strand made at the forming operation is twisted on standard textile machines. The yarn package is called a twister tube, or pirn, and is purchased by some manufacturers in this form for multiple winding 2 ends or more for braiding operations. Other manufacturers purchase the yarn multiple wound by Owens-Corning Fiberglas on (1) a braider tube designed for Wardwell and New England Butt Braiding equipment, or (2) a magnet wire package, engineered for efficient operation on most textile serving or wrapping machines.

★ ★ ★

Some of the advantages of Fiberglas yarns in wire and cables are:

Tensile Strength

Fiberglas yarns have a breaking strength considerably greater than other textile fibers. This is important in your manufacturing operation where yarn breaks cause down-time, lowered efficiency, and increased cost. The yarn also has extremely high resilience. This gives high resistance to impact. Laboratory tests on impact resistance of commercially standard non-metallic sheath building cable show the following comparison:

Cotton Braid—4½ foot pounds
Fiberglas Braid—6 foot pounds

Paul L. Layton

PERFORMANCE ADVANTAGES OF FIBERGLAS COVERED MAGNET WIRE

1. High insulation resistance
2. Good heat conductivity
3. Small space factor
4. Moisture resistance
5. Heat resistance
6. Dielectric strength

RELATIVE ECONOMICS

FIBERGLAS COVERED MAGNET WIRE (.0253"HF)

PROD. USED	#OF YARN/100# FIN. WIRE	YARN COST PER LB.	YARN COST /100# FIN. WIRE
450-1/2	6.3#	$1.77	$11.10
150-1/0	6.6#	.60	3.95

FIBERGLAS UNDERSERVE ON DOUBLE COTTON COVERED MAGNET WIRE (.057" BARE)

PROD. USED	YARN WT/1000 FT. OF WIRE	YARN COST PER LB.	YARN COST/1000 FT. OF WIRE
1st Serve 80/1/16 2nd Serve 80/1/17	.427#	$1.50	$.64

MAGNET WIRE

2/7/50
KKH

MANUFACTURERS NOW USING FIBERGLAS AS A WIRE COMPONENT

The Acme Wire Co.
American Steel & Wire Co.
Anaconda Wire & Cable Co.
Electric Auto-lite Co.
Essex Wire Corp.
General Cable Corp.
General Electric Co.
Hudson Wire Co.
Kennecott Wire & Cable Co.
Phelps-Dodge Copper Prod. Corp.
Philadelphia Ins. Wire Co.
John A. Roebling's Sons Co.
Rome Cable Corp.

Table I.

Space Factor

The smaller diameter of Fiberglas braided building wire enables a contractor to put into existing raceways 63 glass-braided #14 gauge in a one to one-half inch conduit and meet National Electric Codes, which permit only 45 cotton-braided #14 type R.

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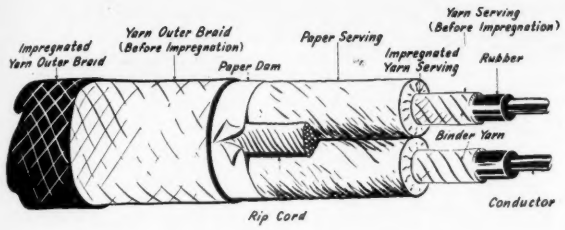
A thin glass serve offers great space saving in motor, transformer, and generator coils.

Moisture and Rot Resistance

The combined effect of chemical vapors, moisture, soil bacteria and fungus tend to break down insulating materials. In addition to resisting these effects, glass yarns also tend to protect the primary insulation against them. After a 4 month test burial in a high acid soil, the voltage breakdown was 10,000 volts for the cotton braided and 22,000 volts for the Fiberglas braided wires.

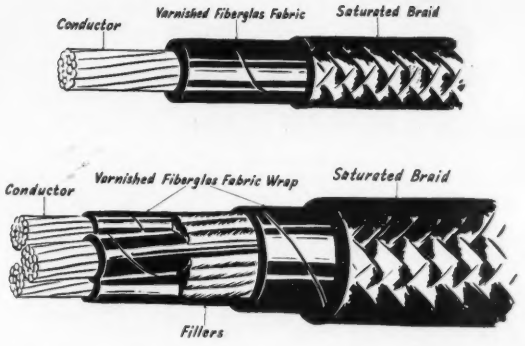
Heat and Flame Resistance

Because of the inherent heat resistance of Fiberglas yarn, it is possible to use more heat resistant impregnates and higher temperatures in processing, than is possible with



NONMETALLIC-SHEATHED BUILDING CABLE

Fig. 2.— * * * * * * * * * * *



VARNISHED FABRIC INSULATED CABLE

Fig. 3.— * * * * * * * * * * *

organic fibers. Glass yarn may melt under extremely high temperatures, but will NEVER BURN.

Economics

Today Fiberglas yarns per unit length per pound breaking strength are the most economical textile on the market. The price per lb. of Fiberglas yarn over the past 10 or 12 years has steadily declined. The economics of Fiberglas yarns as used in various wire and cable applications are as follows:

Non-Metallic Sheath Building Cable

Currently, the use of Fiberglas yarns in the outerbraid of nonmetallic sheathed building cable is an industry standard. Of the 23 major producers of this cable, 18 currently produce an all Fiberglas outer braid, while the 5 remaining manufacturers produce with a 50% cotton—50% Fiberglas braid.

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Other Fiberglas components of NMSBC are dyed yarns as company marker, and wax bonded strand as a filler of rip cord.

★ ★ ★

Textile material costs on the outer braid when using 100% Fiberglas show a savings over cotton yarns of approximately $2.00 per 1,000 feet.

★ ★ ★

Corollary savings in pounds of impregnant used, shipping costs, cartoning costs, and braiding efficiencies also contribute to manufacturing economy. Development work is now being done with several manufacturers on the knitting of the outer braid with Fiberglas yarns.

Rubber Covered Wire

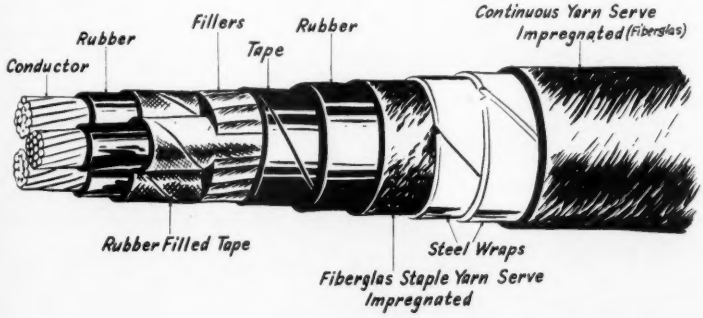
As in the case of NMSBC, the use of Fiberglas yarns in the textile braid or serve of rubber covered wire is becoming a "standard of the industry." Manufacturers are currently producing type R wire with a 100% Fiberglas braid, a 100% Fiberglas and combination Fiberglas-cotton braids and serves. The satisfactory history of commercial production of many of these constructions (including all Fiberglas braids) dates back several years. Savings are from 64¢ to 79¢ per 1,000 feet.

Armored Cable

Due to the smaller diameter of Fiberglas braided rubber covered wire, and increased impact resistance, Underwriters' Laboratories have approved a reduction in the overall diameter of the steel armor.

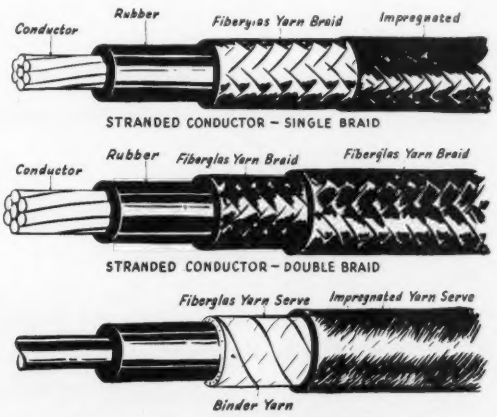
★ ★ ★

In AC or ACH armored cable, for example, with size 14 conductors, Underwriters will permit a reduction in steel armor weight of 1.4 pounds per 100 feet, if a Fiberglas braided type R wire replaces a cotton braided wire. A manufacturer producing 5,000,000 feet of cable with #14 wire, could save as much as 70,000 pounds of steel. These



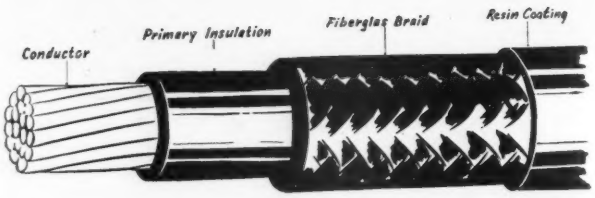
PARKWAY CABLES

Fig. 4.— * * * * * * * * * * * * *



BUILDING WIRE - TYPE "R"

Fig. 5.— * * * * * * * * *



RADIO AND INSTRUMENT WIRE

Fig. 6.— * * * * * * * * * * *

PORTABLE CABLES

Fig. 7.— * * * * * * * * * *

savings in steel, in addition to the possible savings in textile costs shown above, have further stimulated the use of Fiberglas in rubber covered wire.

Weatherproof Wire

At present, a committee of ASA is working on revisions to the specification. Until these revisions are proposed, we cannot discuss the full economic advantage of Fiberglas. However, we do know that savings will be made by using Fiberglas. Some manufacturers are producing production quantities of weatherproof wire with Fiberglas as a component.

Service Entrance & Drop Cable

Comparison of 20/2/4 cotton and 150-1/0 5 end Fiberglas based on use on a 2 conductor—bare neutral, 6 gauge—cable the savings would be 3.44/1000 feet if cotton cost was 70¢.

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In addition there are corollary savings in braiding efficiency, braider shutdown reduction, reduced weight of cable, and reduced impregnant used.

Lacquered Wires

This broad category covers radio and instrument hook up wire, automotive wire, and aircraft wire. The possibility of using Fiberglas in these fields has always been of considerable interest to both Owens-Corning Fiberglas and the electrical industry. Over the past few months our laboratory in Ashton has developed a new process for making Fiberglas dyed yarn. This process is now well on the way to producing Fiberglas dyed yarns that have properties and economics comparable to or better than competitive materials such as cotton or rayon. The one outstanding feature of the new dyed yarn is the economic picture that it presents. As a result of the new dyeing process, the dyed 150's-1/0 yarns show a savings of from 45¢ per 1,000 feet to $1.75 per 1,000 feet, depending upon the wire size being covered with textiles.

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We have here samples of the new dyed yarn, and wires that have been produced in the automotive field. These savings related to a total automobile harness would mean approximately 5¢ per car. There is also considerable saving in lacquer consumption because Fiberglas will not absorb lacquer, as organic type yarns will. The use of Fiberglas on the outer braid also gives very good resistance to gasoline and oil vapors, and also resistance to heat generated by the motor.

★ ★ ★

In aircraft, Fiberglas yarns perform the function of a fire wall. This is very important, for if a short circuit should develop, Fiberglas yarns would hold the charred primary in place, and also give protection from one wire rubbing against the other.

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Other applications for Fiberglas in the specialty fields are in AVA cables where a combination of asbestos and glass can be run on a Wardwell Braider at five times the speed that it would be run on a New England Butt type braider. Large parkway cables have Fiberglas as the bed wrap and also outer wraps making a completely inorganic parkway cable for railroads.

Portable Cables

A neoprene coated yarn is being used as a replacement for cotton seine twine with economic advantages and also superior performance.

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Fiberglas products are performing in other fields in the same manner as they do for wire and cable.

A special invitation to attend The WIRE ASSOCIATION'S Annual Convention in November is extended to all persons concerned with the manufacture of electric wire and cable. There will be much of interest and value to you gentlemen of this great branch of our industry. Please turn to page 782 for further information and watch for the 4-page detailed program in the September issue of Wire and Wire Products.

Write today for a hotel reservation card.

RICHARD E. BROWN, Executive Secretary, THE WIRE ASSOCIATION

453 MAIN STREET, STAMFORD, CONN.

NON-FERROUS DIVISION REGIONAL MEETING

Of the WIRE ASSOCIATION set for Sept. 19, 1952, Elton Hotel, Waterbury, Conn.

Plan now to attend this important conference!

This is the first of the Non-Ferrous regional meetings. All Non-Ferrous rod and wire men, product fabricators and electric wire and cable men are cordially invited to attend the conference—a one day meeting.

The Program

8:30 A.M. Registration desk opens. Fee, including dinner and bus transportation to and from plant to be visited . . . $6.00.

10:30 A.M. Technical session, with two papers, as follows:

"General Procedures for Brass and Copper Wire Drawing" by Benjamin H. McGar, Assistant Director of Research, Chase Brass and Copper Co., Waterbury, Conn.

"Bunched Copper Wire for Electrical Conductors" by Howard H. Allen, President, Nonotuck Manufacturing Co., Holyoke, Mass.

Opportunity will be given following each paper for its discussion, after which the meeting will be adjourned for luncheon.

1:00 P.M. PLANT INSPECTION TRIP. Busses will leave the Elton Hotel to visit the mills of the Scovill Manufacturing Company. Guests must go in the busses and wear badges to be admitted.

5:00 P.M. COCKTAIL HOUR—This will give you an opportunity to meet others in the industry and to visit with those whom you know now.

6:00 P.M. DINNER. The group will be addressed after dinner by a prominent staff member of one of the major brass companies in the area.

It is planned to adjourn at 9:00 P.M. to allow those who may come from considerable distances to arrive at their homes in good season.

EVERYBODY OUT FOR THIS MEETING! IT IS YOURS AND YOUR ATTENDANCE WILL HELP TO MAKE IT A BIG SUCCESS. WE HOPE TO SEE YOU THERE.

If you are not a member of The Wire Association, write for a reservation card. Members may bring guests. All welcome!

THE WIRE ASSOCIATION

RICHARD E. BROWN, Executive Secretary

453 MAIN STREET **STAMFORD, CONN.**

PACIFIC COAST REGIONAL MEETING OF THE WIRE ASSOCIATION

A splendid turnout and a fine meeting was held on June 13, 1952, at the Los Angeles Biltmore Hotel in Los Angeles, California.

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One hundred and forty-three registered for the affair, one hundred and ten went on the plant inspection tour and one hundred and thirty-seven attended the dinner and technical session.

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Earl R. Potter, President and General Manager of Industrial Wire Products Corp., Los Angeles, headed the program committee, on which **Kenneth H. Davis,** President of K. H. Davis Wire and Cable Corporation, Los Angeles, and **Richard E. Brown,** Publisher of WIRE AND WIRE PRODUCTS, Stamford, Conn,. assisted as committeemen. These men, together with **R. J. Tremblay,** General Superintendent of Bethlehem Pacific Coast Steel Corporation's Los Angeles plant, who served as Chairman of the meeting at the evening session, were responsible for the fine program that our Coast members were able to enjoy.

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After the morning hours, which were devoted to registration, informal conferences and get-togethers, those who wanted to make the plant visitation left the hotel about noon for the K. H. Davis Wire and Cable Corporation, where a satisfying buffet luncheon was served. There were no guided trips about the plant in groups, but at each group of machines a man was stationed to answer questions and explain their operation. Visitors were shown every courtesy and the operation of equipment in the plant described and shown without reserve.

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An often-heard remark was that **Ken Davis** had one of the best engineered small wire mills in the United States. Here are some of the important features which confirm these remarks:

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Bale tie wire for automatic baling machines is made by drawing on a Morgan-Conner wire drawing machine. (Ken was disappointed that his De Gorcy descalers had not arrived in time for his guests to see it in operation. When set up the rods will be run through mechanical descalers directly ahead of the Morgan-Connor machines.) The Davis system of wire drawing is truly continuous as the wire is removed from the finishing block by means of an overhead sheave to a Marshall Richards Stationary Continuous Coiler.

★ ★ ★

The framework of this coiler is a heavy casting which carries the rotor or revolving center portion which is driven by V belts. On the rotor are fitted a set of 7 heavy duty adjustable killing rolls which kill all twists in the wire and cast the wire in a coil.

★ ★ ★

The wire enters the machine through the center of the rotor axis, and passes over a guide sheave into a tube which carries it toward the periphery of the rotor where it is guided into the killing rolls. These rolls acting as a flyer, feed the wire onto the drum portion, formed by four shafts. The receiving drum or block is counterweighted to overcome the tendency to revolve.

★ ★ ★

The wire is then fed directly onto an annealing stem placed in a pit in the floor. When the stem is completely filled with a single coil weighing about 3000 lbs., the stem is removed to a Lee Wilson bright annealer. The bright annealed wire is transported on the stem to a layer winder. The wire is flipped directly from the annealing stem to an electronically controlled twin-head coiler.

★ ★ ★

A well laid out fine wire galvanized unit having the pay-offs and take-ups at the same end of the unit, produces galvanized wire in 8″ coils for the production of clothesline strand. The 8″ coils of galvanized wire, after welding into large packages, are flipped for feeding to a conventional buncher which was ingeniously arranged to produce an exceptional good quality strand.

★ ★ ★

The finished strand is paid off from a spool to a coiling and measuring machine. This machine is of the continuous coiler type and was engineered by their own staff. This coiler premeasures the strand into 25 feet lengths which are fed to a conveyor by means of electronic timing devices, where the operator cuts and bundles them into the desired shipping packages.

★ ★ ★

Some very well "engineered" jobs were noted in the Coat Hanger Division, such as straightening and cutting machines placed on top of the hanger forming machines, a screw conveyor to sort out the hangers and deliver them to the japanning operation. There were also some very ingenious packaging devices for the packaging of wire and wire products.

★ ★ ★

The plant produces an average of 1600 tons per month of fabricated products, such as coat hangers, clotheslines, wire rope, poultry netting, bale ties, special radio wires, etc., with a total of only 80 production men.

★ ★ ★

The old adage "seeing is believing" surely was the consensus of those making the tour, for after "seeing", Ken's guests "believed" that his plant is rightly called "one

of the best engineered small wire mills ever seen".

Evening Activities

At 6:30 P.M. a cocktail hour preceded the evening program, which began with a dinner at approximately 7:30 P.M. **R. T. Tremblay** presided at this function, introducing after dinner a most interesting speaker, **J. W. Egan,** Head Up Man, Wire Sales, from the office of the Bethlehem Pacific Coast Steel Corporation at San Francisco, whose talk concerned the "Trends in the Western Metal Industry".

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In this talk, which sparkled with wit and humor, he pictured the growing industrial expansion of the Pacific Coast area. Los Angeles, he noted as an example, had a population of 500,000 when he arrived in the West in 1923 and today boasts a citizenry of over 2,000,000 with some 4,000,000 in the county. Growth of this kind, he said, means a healthy wire business. These extra people need automobiles in which to ride, beds in which to sleep, houses, fences, and the like, which call for wire springs, nails, stucco netting, chain link fences, bale ties, tie wire, barbed wire, tire bead wire and the like. They use coat hangers, they necessitate welded wire fabric for the reinforcement of new roads and streets, wire rope for building roads and plants and bolts, nuts, rivets and screws for various manufacturing operations, all of which have called for great quantities of quality cold heading wire, annealed in process wire and sherodized in process wire.

★ ★ ★

Mr. Egan had with him a number of samples of wire products that he exhibited and explained, giving the wire specifications required for each, embracing low, medium and high carbon steel wires. In exhibiting a coat hanger, he said he had looked into the consumption of this item in the Coast states and had found that it was running approximately 12,000 tons annually and that this tonnage of hangers would provide enough footage of wire to encircle the earth seven times.

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In California, Oregon and Washington, the speaker declared, there had been a population increase since 1920 of about 9,000,000 people to a total of 14,365,000 in 1950, with over 3,000,000 more to be added in the coming decade. This remarkable growth, he felt, assured the far-western states of a good continuing wire market for the forseeable future. The western states are presently consuming a conservative 297,000 tons of steel per year.

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Mr. Egan has been selling wire for sixteen years and is now covering the Southern California and Arizona territory. He is a graduate of the Los Angeles' Loyola University, from which he received a Bachelor of Science degree in 1935. He entered the wire product sales field with the Columbia Steel Company and six years later became affiliated with the Pacific Tube Company, an organization of which he was instrumental in forming. He joined the sales force of Bethlehem Pacific in 1944, which assumed added importance when the company's wire mill became a fully integrated operation in 1948.

★ ★ ★

Following a short intermission, the technical session was opened with a paper entitled "The Evolution of the Modern Galvanizing Pot" given by **Wallace G. Imhoff,** President of The Wallace G. Imhoff Company of North Highlands, Cal. Mr. Imhoff described various types of pots from the earliest down to the present, covering both designs and materials and explaining the faults and advantages of each that has led finally to a high degree of efficiency in design and construction.

★ ★ ★

A second paper, "Fiberglas Yarns —Their Qualities and Applications" was presented by **Paul L. Layton** of the Pacific Coast Division of the Owens-Corning Fiberglas Corporation. In his paper Mr. Layton outlined the growing uses, the advantages, and some of the engineering problems involved in the use of fibrous glass as a wire insulating material. Both Mr. Layton's and Mr. Imhoff's papers will be found in this issue.

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The technical session brought the Pacific Coast Regional Meeting to a close. The meeting had been successful from every angle and grateful appreciation is due the Program Committee for its efforts in organizing it. The Committee and the officers of The Wire Association also extend their thanks to the very able speakers, whose splendid papers provided those who attended with the real "meat of the cocoanut".

★ ★ ★

The Annual Convention

This will be held in Cleveland this year, November 10-14, with headquarters at the Carter Hotel. Please note the change from October to November. Full details to be announced later.

●

THE WIRE ASSOCIATION

453 Main St.

Stamford, Conn.

FOR NON-FERROUS WIRE MEN...

AN EXCEPTIONALLY INTERESTING PROGRAM HAS BEEN ARRANGED FOR THE ANNUAL CONVENTION OF THE WIRE ASSOCIATION—NOVEMBER 10-13, 1952, AT CLEVELAND, OHIO, WITH HEADQUARTERS IN THE CARTER HOTEL.

We want you to make a special effort to attend this convention and your presence will help make it the success that all the efforts of your Program Committee deserves.

This program has been set up by and for non-ferrous men—whether in the bare wire or insulated wire end.

YOUR PROGRAM INCLUDES PAPERS ON SUCH SUBJECTS AS:

The manufacture of copper-steel wire by electrolytic process.

A methods improvement study.

The application of the finest glass fiber made to insulated wire.

All plastic non-metallic sheath cable design.

Extruder design principles applicable to insulating and covering operations.

Dry blending of vinyl resins for insulated wire.

Silicone rubber as a wire covering.

Weathering characteristics of PVC-type plastics.

Effect of impurities on machineability and annealing characteristics of free machining brass rod and wire.

Cost reduction through improved plant layout.

Control of wet wire drawing solutions.

Other features of the Convention will be the Annual Luncheon, followed by the Mordica Memorial Lecture, the annual business meeting of members of THE WIRE ASSOCIATION, the Stag Smoker-Dinner and a plant visit. You should be in Cleveland to attend each and every one of the sessions and functions.

Full details will be published later, BUT, make arrangements now with your management to attend.

THE WIRE ASSOCIATION

RICHARD E. BROWN, Executive Secretary

453 MAIN STREET **STAMFORD, CONN.**

(See page 785 for the Ferrous Program)

THE PERFECT PROFILE — A YARDSTICK

by Frances Mortimer, B.A.
The British Iron and Steel Research Association
London, England

A description of the method of measuring wire drawing die bores using the instrument developed by the British Iron and Steel Research Association. Some of the faults in die construction disclosed are discussed. While it is felt that the use of the device has uncovered flaws in many supposedly perfect dies, there still remains much to be done in the designing and manufacturing of dies in order to secure from these useful wire drawing tools their maximum possible service and efficiency.

Hard wear and tear has caused the breakdown of many a perfect profile. If the profile does not approximate perfection in the first place, the end will come even sooner. According to the engineers of the British Iron and Steel Research Association, the users of wire drawing dies have been living in a fool's paradise for years. Like the lady in front of her vanity, they trusted the evidence of their eyes and wondered when the results did not tally up.

★ ★ ★

Until recently, there was no direct method of accurately measuring the bore or internal profile of the wire drawing die. Dies were measured by visual inspection or indirectly by measuring casts or partly drawn wires. Measuring the wire drawn through the die was something less than speedy. The other techniques could not be relied on. There was thus a clear field when "BISRA", as this organization calls itself, decided to do something about providing a fast and exact method of determining the profile of the die bore.

★ ★ ★

Unlike the lady's profile, the shape of the bore must be made to exacting standards. It is the bore that controls the deformation of the wire in production and hence its shape and quality. If the reduction zone is curved, it will cause excessive friction and the deformation will be irregular. If the die angle is too large, an internal weakness known as "cuppiness" will probably result. If the die angle is too small or the bearing too long, there will be excessive drawing force that may produce undersized wire or cause frequent breaks in it.

★ ★ ★

All these faults are ancient history to the users of wire drawing dies, but never before have they been so important. Mass production methods and increased drawing speeds give the bore a beating it never had to take before this second Industrial Revolution in which we are now overrunning the bases. These same pressures for ever increasing production make the delay when the die has to be replaced that much more costly. Even when the die does not actually break down, its profile can be changed so that the roundness and strength of the wire are not up to par.

★ ★ ★

Looking at it from another angle, this business of not knowing exactly what the profile of your die looked like, often led to arguments over the type of bore best suited to a particular job. Dies made to the same specifications were often as much alike as non-identical twins, so that the user was hard put to say to what specification he wanted his die bore made. Since there was no immediate way of measuring the bore, he could not be sure of specifying correctly. Even then he had very little control over the die manufacturer.

★ ★ ★

The bore profilometer designed by the Instruments Section of the British Iron and Steel Research Association is expected to go a long way toward ensuring the correct choice of die profiles as well as to encourage the die manufacturers to try for the same precision in their bore profiles as do the manufacturers of gauges. This instrument was first designed as a research tool (See Hessenberg: Wire and Wire Products, Oct., 1948), but it has since been manufactured commercially for routine use in wire drawing shops. It has already been adopted by a number of big British wire firms.

★ ★ ★

The instrument consists of a feeler arm mounted on a pivot with a probe at one end and a plane reflecting surface at the other. Measusements are made by two micrometer screws which read directly to 0.0001 in. in vertical and horizontal directions. An auto-collimator is used as a null indicating device. The die is inserted in a 3-jaw rotating chuck that is fitted with a simple dividing plate so that it can be positioned at 6° intervals. The probe tip is passed through the die and its movement within the bore is measured optically by means of a stainless steel reflecting surface which is attached to the other end of the feeler arm so that any angular rotation of the feeler arm can be detected by the auto-collimator. A counterweight is provided to direct the probe to the top or bottom of the bore as desired.

★ ★ ★

The measuring carriage, that is traversed horizontally by a one inch micrometer screw, is kinematically mounted on precision ground hardened steel rods that serve as guide ways. The motion of the carriage must be carefully adjusted so that it is parallel to the axis of rotation of the chuck. Contact between the micrometer spindle and the carriage

Fig. 1.—Wire drawing die profilometer.

is maintained by a spring.

★ ★ ★

The pivot on which the feeler arm rests is supported by a vertical spindle mounted on the measuring carriage, is capable of a vertical sliding motion and a limited rotation about a vertical axis. The vertical movement of this spindle is controlled by a micrometer by means of a geometrically mounted lever. For convenience in handling, both micrometer spindles can be operated by outside knobs at the right end of the machine.

★ ★ ★

As the measuring carriage is moved along the steel rods, parallel to the axis of the die bore, controlled by adjustment of the first micrometer screw, the feeler arm tip moves axially along the bore of the die and the feeler arm rotates about its pivot axis. This rotation is nullified by vertical adjustment of the pivot spindle with the other micrometer. When the "null" position is reached by reference to the initial position of the image in the auto-collimator eyepiece, the readings of the two micrometers give the rectangular co-ordinates of the profile at that position. The micrometer drives are connected to a pen mechanism so that the curve of the die profile can be plotted as the instrument is adjusted.

★ ★ ★

Messrs. Hilger & Watts, Ltd., who manufacture the bore profilometer, also make the two co-ordinate recorders designed for use with it. The original instrument was hand-operated, but an automatic form has since been developed, in which the adjustment of the vertical spindle to restore the angle of tilt of the mirror to its initial position is done automatically, using a light source and photoelectric cell system sighted on the probe mirror and replacing the auto-collimator. The output signal from the photocell unit is amplified and applied to a servo motor which drives the knob controlling the motion of the vertical spindle, so maintaining the mirror at a constant angle as the probe tip is passed through the die bore.

★ ★ ★

Fig. 2.—Magnified sketch of the probe tip.

When a profile is to be measured, the probe is inserted in the bore and the auto-collimator adjusted until the image reflected from the probe unit reflector appears in the field of view of the eyepiece. The adjusting screw immediately below the probe unit is rotated to make sure that the probe point lies on the vertical axis of the bore. This condition is seen as a reversal in the direction of movement of the reflected image in the auto-collimator. The carriage is then traversed horizontally by the appropriate knob (the extension of the micrometer for the horizontal movement). This brings the probe onto a different portion of the profile and the reflector on the probe unit is tilted. The other knob is then turned until the reflected image from the probe is once again restored to its original position, and the micrometer reading of the vertical sliding motion is taken.

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The diameter can be measured at any point on the bore in a similar manner, except that two readings in the vertical direction are taken, one on the top surface and one on the bottom. The difference between the two micrometer readings plus the diameter of the probe gives the diameter of the bore.

★ ★ ★

When the B.I.S.R.A. profilometer was first built, many dies were examined and the results were astonishing. Hardly ever did they follow the shape specified. The taper of the reduction zone was frequently out by as much as 10%. In fact, it was more often trumpet-shaped than conical. The length of the throat was frequently out by more than

(*Please turn to page* 827)

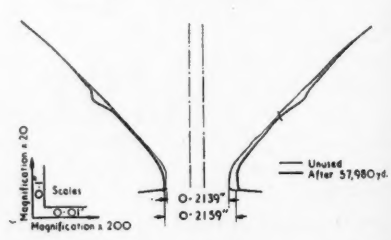

Fig. 3.—Plot of a wire drawing die profile.

FERROUS WIRE MEN . . .

Be sure to attend the Annual Convention of THE WIRE ASSOCIATION in Cleveland in November. Headquarters will be at the Carter Hotel and the dates are November 10-13, 1952.

A program of technical papers and other WIRE ASSOCIATION activities has been arranged for you that will command your interest and makes highly desirable your personal attendance.

YOUR PROGRAM WILL INCLUDE PAPERS ON:

The manufacture of copper-steel wire by electrolytic process.

A methods improvement study.

Lime for wire drawing.

Significance of elongation tests on cold drawn wire.

Magnetic and electrical properties of stainless wire.

The drawing of weaving wire.

Quality control in a fine wire mill.

Wire for pre-stressed concrete.

Salt versus atmospheric annealing.

Design of a galvanizing furnace.

ASCR wire.

Besides the papers, each of which will be followed by a discussion period, there will be the Annual Luncheon at which Peter Igoe will deliver the honorary Mordica Memorial Lecture, the Stag Smoker-Dinner, the annual business meeting of the members of THE WIRE ASSOCIATION and an interesting plant visit.

Full details will be published later, BUT, make arrangements with your company management to attend.

THE WIRE ASSOCIATION

RICHARD E. BROWN, Executive Secretary

453 MAIN STREET **STAMFORD, CONN.**

(See page 782 for the Non-Ferrous Program)

The Fifth Annual Wire and Cable Conference

That this conference, held at Shawnee Inn in 1952, has come to be an eagerly anticipated annual event by the electrical wire and cable industry, is a tribute to the Fiberglas organization for its consistently thoughtful planning of a program of talks by means of which definitely helpful information is imparted on the subject of making electric wire of various types that will provide the ultimate consumer with greater utility, safety and value in these products.

Beautiful Shawnee Inn at Shawnee-on-Delaware, Pennsylvania, was the scene of two busy days, June 12th and 13th, when the **Owens-Corning Fiberglas Corporation** staged their "Annual Wire and Cable Conference" successfully for the fifth time.

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In addition to the Fiberglas "family" of executives and technicians, one hundred and seventeen guests attended the meeting—the largest so far held.

★ ★ ★

George H. Sherrard, Manager of the Electrical Division of the company, served as chairman of the sessions, which began at 9 A.M., Thursday, June 12th. After extending the official greetings to the assemblage, he introduced Harold Boeschenstein, genial and straight-from-the-shoulder president of the enterprising corporation, who made a brief address of welcome.

★ ★ ★

Mr. Boeschenstein expressed his gratification that each year a growing number of electric wire and cable men were deriving some value from these meetings, stating that only one thing could induce them to want to come—Owens-Corning Fiberglas' ability to provide information that could be taken back to their businesses with profit.

★ ★ ★

He pointed out that this technical and production information supplied here was gathered from two important sources: their own laboratories, where new ideas were developed, and from the users of Fiberglas themselves, who converted the new ideas into practical applications of a highly utilitarian nature. It was stressed that much was gained also from this opportunity of the mill men to exchange personal ideas on their many problems.

★ ★ ★

The uses of glass yarns, Mr. Boechenstein said, had expanded tremendously in recent years, the industry having become in the same period highly competitive, which he felt was a healthy condition, as it made for progress and kept his organization on its toes. New developments in yarn manufacture, yarn processing and yarn applications were constantly being brought out due to the combined efforts of themselves and their customers. he said.

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He closed his remarks by stating that these conferences would be continued as long as there were new ideas to offer the wire and cable men that would justify their coming so far to attend—and that they would probably continue as long as our country could steer clear of the socialization of industry by government.

★ ★ ★

Fig. 1.—Enjoying a pre-dinner chat at Shawnee Inn are (l. to r.) A. L. Towne, W. G. Godkin and J. K. Wentz, all of General Electric Co., Ted Fowler of Fiberglas, H. R. Burgess of H. H. Robertson Co., and E. L. Crandall of G. E.

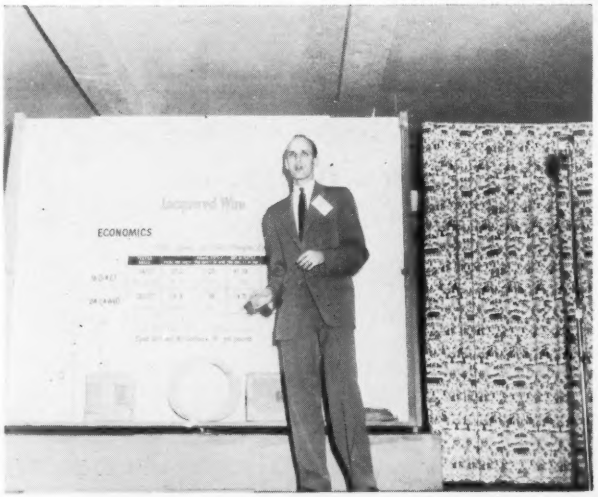


Fig. 2.—Fowler Blauvelt, Manager of Fiberglas Wire and Cable Sales, explains the economic advantages of Fiberglas yarn for lacquered wire at the Wire and Cable Conference.

Fig. 3.—Robert M. Harbeck of Fidelity Machine Co. (center) explaining the mechanics of knitting Fiberglas yarns during a demonstration of the Fidelity-Sinfra knitting machine.

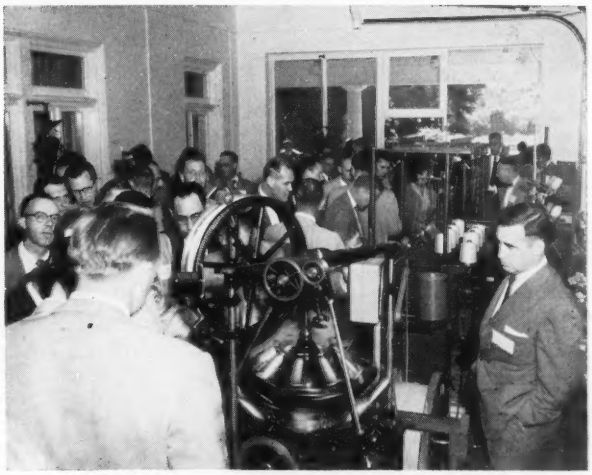


Fig. 4.—A Wardwell Braiding Machine in Operation, with the Knitter in the background.

Each guest present at the conference was provided with a manual covering the main subjects discussed by the speakers. These were divided into sections, each devoted to a particular type of wire and cable. Visual demonstrations of various properties of Fiberglas and of Fiberglas yarn or tape covered cables, livened the lectures and drove home the characteristics being described.

★ ★ ★

A departure from the usual procedure of having only Fiberglas men as speakers, was in the demonstrations and talks given by three men. The first of these was by **Robert M. Harbeck,** who described and operated a Fidelity-Sinfra knitting machine. The second was by **Louis Shulver** who similarly showed the operation of a Wardwell braider. Mr. Shulver also discussed the necessity for cleaning and oiling a braider at four hour intervals, comparing the wear on a braiding machine cleaned regularly with one operated for twenty-four hours without such "housekeeping". The cleaning and oiling could be done in 60 seconds, he said, and paid off in real savings to the operator. The third was a short talk given by **James E. Flood,** Chemical Engineer of the Plastic Wire and Cable Corporation, in which he outlined the results to date of experiments that his company, in cooperation with the Fiberglas textile laboratory at Ashton, R. I., had been making on the use of chopped glass fibers in extruded resins. These have been applied successfully on a standard PVC extruder. Promising results are being obtained that may lower compound costs and provide better coating heat and deformation characteristics.

★ ★ ★

On the evening of the first day, following dinner, an impressive array of prizes were awarded to various "winners" of a guessing contest, the golf tournament and drawings. Two of these were awarded to the first two women officially to attend the conference, **Miss Viola Martin** and **Miss Sylvia Bakker,** both of the Cornish Wire and Cable Company in Paterson, New Jersey.

★ ★ ★

Gerard Piolenc, Assistant Director of Research of the Fiberglas company, before the close of the second day's meeting, outlined the work that is currently being conducted on fibrous glass. These include new glass compositions, new types of glass melting units, new controls for the manufacture of yarns, new automatic operations, new types of fibers—extremely fine filaments and a new "curly" fiber, and a new type of package—all to the ends of product improvement and lowered costs.

Fig. 5.—W. A. Whittaker (L) and C. B. Townsend (R) both of Anaconda, trying their hands at winning a prize.

★ ★ ★

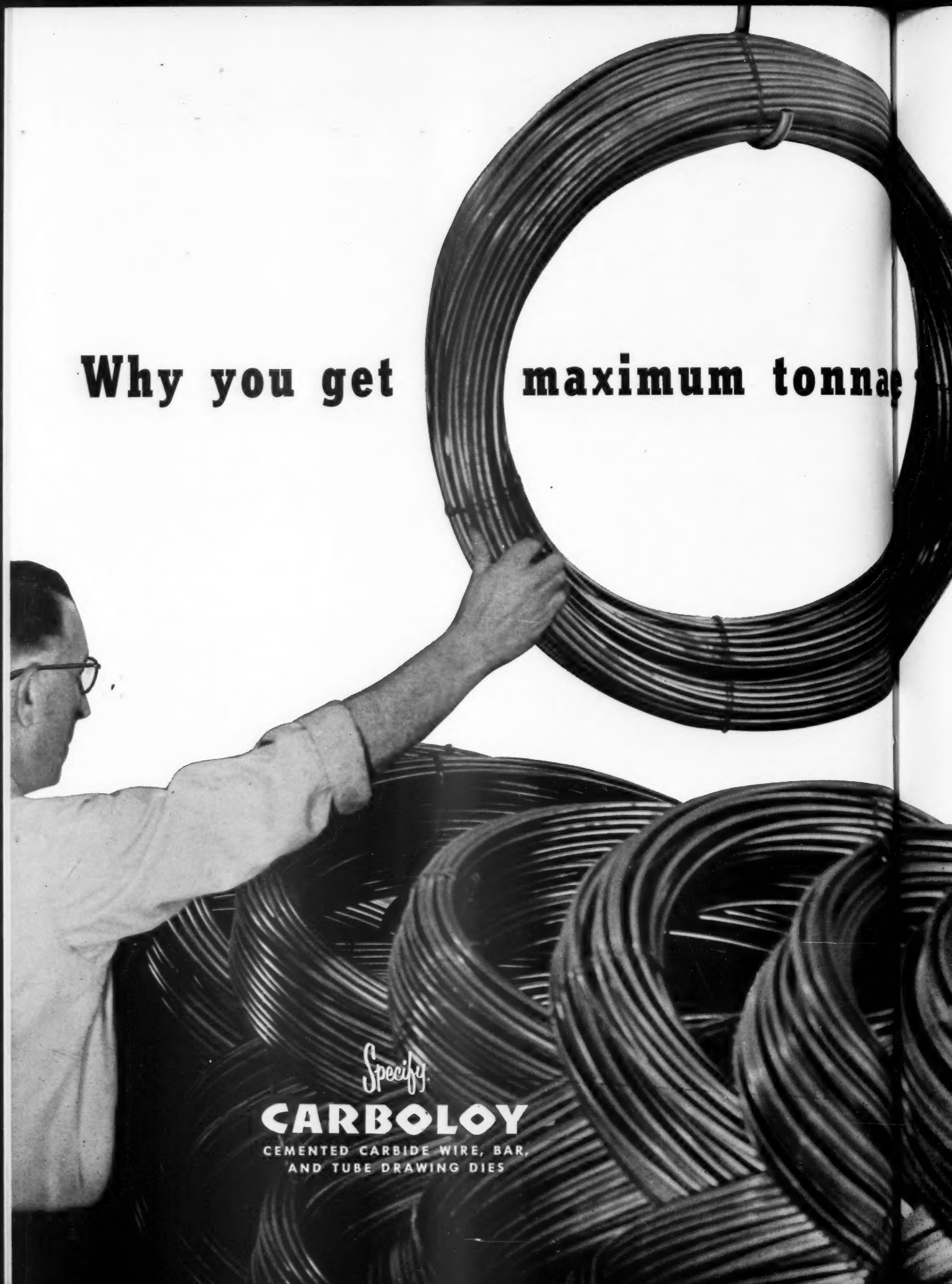
His talk was followed by a color motion picture, "The Magic Marble", in which various operations from marble-forming to product fabrication were depicted. **J. H. Thomas,** Vice President of Owens-Corning and General Manager of the Textile Products Division, formally closed the meeting, describing the many fields besides electric wire and cable in which had been developed useful applications for glass yarns. As a dramatic conclusion to his remarks a car was driven down the aisle to the speakers' rostrum, the body of which was made of glass-reinforced plastic.

★ ★ ★

Thus was brought to a happy ending the Fifth Annual Wire and Cable Conference, for which Fiberglas staff are to be congratulated for their splendid teamwork—and accorded thanks for all the sweat and sound thinking that had preceded the meeting.

★ ★ ★

The slogan of this year's conference was "Electrical Insulating Materials Designed for Performance and Economy."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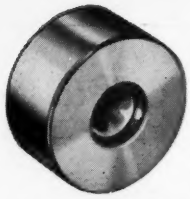
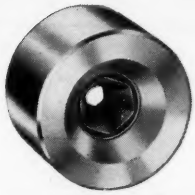
Specify
CARBOLOY
CEMENTED CARBIDE WIRE, BAR,
AND TUBE DRAWING DIES

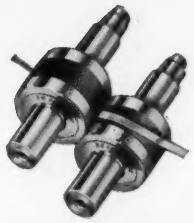


Carboloy Round-Hole Dies: Exclusive hot-forge casing process gives greater over-all strength and compressive backing.



Carboloy Hex Dies feature larger bell openings. Permit better lubrication, give better-shaped rods of any material you use.

Carboloy Capstan Rings pull wire through die, resist wear of severe tension and abrasion. Help keep production rolling.



Carboloy Wire-Flattening Rolls provide accurate sizing and finishing as round wire is rolled into a specified flat strip.

Carboloy Special-Shape Dies: Available rough-cored, rough-drilled or finished. Send specifications for quotations.

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You'll cut costly downtime from your wire-drawing operations with extra capacity, extra stamina of Carboloy dies. Made of Carboloy Cemented Carbide, hardest man-made metal, they stay on the job longer, deliver profitable, maximum tonnage.

What's more, backed by the most comprehensive service program, you get all carbide benefits, all production benefits. Carboloy field engineers will trouble-shoot your tough applications, and Carboloy Die Service Centers assure quicker resizing with far less time lost.

Let the Carboloy Factory Training School teach your key men latest carbide techniques for greater over-all efficiency. And be sure to send for your copy of the valuable 48-page, illustrated Carboloy Die Service Manual D-119.

Check today with your Carboloy representative to make certain you're getting maximum tonnage from your Carboloy dies.

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AND SCHENECTADY, NEW YORK

Government Wire Production Information

Capehart Adjustments On Machinery Pricing

Changes in pricing provisions for manufacturers of machinery and related goods who employ subcontractors were announced in June by the Office of Price Stabilization. At the same time, changes were announced in optional pricing methods available to machinery manufacturers.

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This action is covered by Amendment 2 to Supplementary Regulation 4 under Ceiling Price Regulation 30, effective June 17, 1952.

★ ★ ★

The agency said manufacturers of machinery and related manufactured goods (CPR 30) who have included additions to cost due to increased subcontracting in computing so-called Capehart ceiling price adjustments, must recompute allowable additions if increased subcontracting drops below 90 percent of the amount of subcontracting in the last fiscal half year before July 26, 1951.

★ ★ ★

This will permit use of additions for increased contracting so long as the manufacturer continues to subcontract at least 90 percent of the amount he did during his last fiscal half year before July 26, 1951. Previously, additions for increased subcontracting could only be used as long as the manufacturer continued to subcontract to at least as large an extent as he did during his fiscal half year ended before July 26, 1951.

★ ★ ★

In addition, this amendment permits manufacturers who do not keep their records on a calendar month basis to use in computing the overhead cost adjustment an accounting period ending between June 1 and July 31. Previously, it was required that the period used end between June 16 and July 31. The new dates were selected so that manufacturers who don't keep calendar month records could use the provision with greater ease. The agency said that this does not change the purpose of selecting a period that approximates the first six calendar months of the year.

★ ★ ★

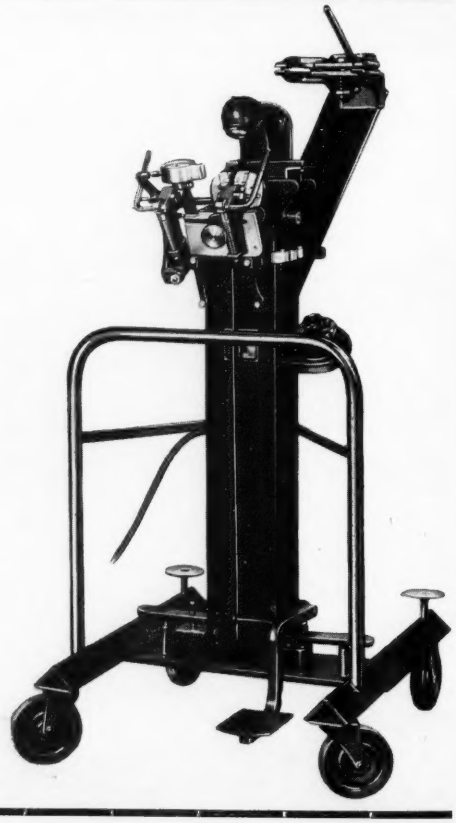
Also, SR 4 to CPR 30 is amended to permit manufacturers to adjust ceiling prices for items on which they can determine a base period under section 7 of CPR 30, and at their option, to omit adjustment on items which are referred to as "modified" or "formula priced" under sections 8 and 9 of CPR 30. This will permit a manufacturer to compute adjustments even though he cannot use the adjustments for all the commodities he manufactures. Previously, a manufacturer was re-

MICROMETER PRECISION — MICRO-WELD TRADE MARK REGISTERED

MODELS J-3-C and J-4-C AUTOMATIC MICRO-WELD BUTT WELDERS

These welders are used for welding COPPER, ALUMINUM, and other non-ferrous wire ranging in size from .031" to .128" diameter.

The welding cycle on these welders is automatically controlled and completed by a single downward stroke of the foot pedal, which include the clamping of the wire being welded, contacting the welding switch, and applying the upset pressure on the weld. All units are equipped with annealing dies, filing vise, light, extension cord, and mounted on a 4-wheel truck.



MICRO PRODUCTS CO.,

20 NO. WACKER DR., CHICAGO 6, ILL.
Telephone: STATE 2-7468

quired to adjust all of his CPR 30 prices simultaneously.

New Contract To Boost Copper Supply

Over 63 million pounds of electrolytically refined Canadian copper will be produced for the United States under an agreement negotiated by the **Defense Materials Procurement Agency.**

★ ★ ★

The agreement is with Campbell Chibougamau Mines, Ltd., of Montreal, and calls for the production and sale of 63,200,600 pounds of refined copper from the company's mining property at Merrill Island, Dore Lake, Province of Quebec, by December 31, 1956.

★ ★ ★

The company has agreed to develop its Dore Lake property at its own expense and will provide all necessary facilities, including a concentrating mill with a capacity of not less than 2000 tons per day.

★ ★ ★

Production of refined copper is to start, under the agreement, in not less than two and a half years and will reach an annual peak of approximately 37,250,000 pounds.

★ ★ ★

The Government may, at its option, buy any or all of the company's output from its Merrill Island facilities at the market price or 24.5 cents a pound, f.o.b. Connecticut Valley points, whichever is higher.

★ ★ ★

The company is required to offer to American industry any output from the Merrill Island facilities which the Government does not take under its option.

Brass And Wire Mill Products IAC

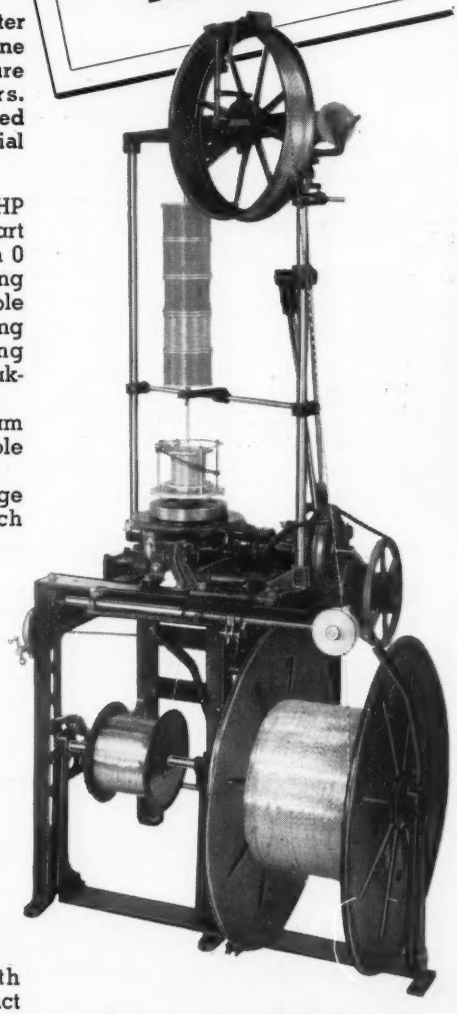
Office of Price Stabilization officials held a joint meeting in June with members of two industry advisory committees representing brass mills and wire and cable mills to discuss a proposed pricing action to give effect to increased costs for foreign copper under a recent directive of the Office of Defense Mobilization.

★ ★ ★

(On May 21, 1952, ODM issued a directive to OPS to allow brass and wire mills to reflect in their ceiling prices 80 percent of the difference between 27½ cents a pound (the price specified in the terminated Chilean purchase agreement) and whatever price they must now pay for

A NEW VERSATILE SERVER

WARDWELLIAN P-C SERVING MACHINE



For applying small diameter filaments such as polyethylene and materials of a similar nature on electrical conductors. Machine is especially adapted for the production of coaxial wires.

- Machine driven by a ½ HP Graham Transmission to start at head speeds ranging from 0 to 2000 RPM. Permits starting operation at any speed suitable for type of material being served, thereby eliminating stretching and avoiding breaking material.
- Manual control for Graham Transmission readily accessible at front of machine.
- Standard set of five change gears furnished with each machine.
- Machine equipped with electric stop-motion.
- Production dependent upon requirements: 4912 feet per hour for applying material at ½" lay.
- Supply tube holds five spools.
- Supply spools made in halves to permit removal without cutting wire.
- Seven supply spools furnished with machine.
- Capstan 18" diameter, 3" face.
- Opening through serving head, 3/16" diameter.
- Machine equipped with counter for measuring product in feet.
- Stand will accommodate reel 30" in diameter with 13" overall width.
- Special windup parts required for reels with drums under 8" in diameter.
- Reels not included with machine.
- Weight approximately 664 lbs.
- Weight crated for domestic shipment approximately 764 lbs.

WARDWELL BRAIDING MACHINE CO.

Central Falls Rhode Island, U. S. A.

Representatives for Europe, British Colonies and Dependencies

JAMES MACKIE & SONS, LTD., BELFAST, IRELAND

SOMETHING NEW UNDER THE SUN!

NEW *Solar* SATURANT FOR CARDED or ROVED ASBESTOS FIXTURE WIRE

has excellent flame and moisture retardant properties . . . excellent electrical properties . . . excellent tank stability . . . superior aging characteristics.

TECHNICAL INFORMATION
Soldura KA-702

COMPOSITION:

Composed of suitable waxes and chlorinated resins with high heat stability.

SPECIFICATIONS:

Softening Point—Ball and Ring.....165-175°F.
Penetration @ 77°F., 100 Grams, 5 seconds.....20-30
Viscosity Stormer @ 130°C., 100 Revolutions..10 seconds Max.
Specific Gravity 77/77°F., ASTM D-71-27.....1.25-1.29
Flash Point ASTM D-92.520°F. Min.
Fire Point ASTM D-92.600° F. Min.
Heating Aging —100 Hours @ 130°C....Very slight change in physical properties
Recommended Operating Temperature.....265-290°F.

CHARACTERISTICS AFTER APPLICATION:

Underwriters' Flame Test—Passes with large margin of safety on #18 AF fixture wire.

Dielectric Breakdown #18AF Wire—over 2,000 Volts.

Insulation Resistance #18 AF Wire—0 Volts Leakage after three hours in salt water @ 104°F. (40°C)

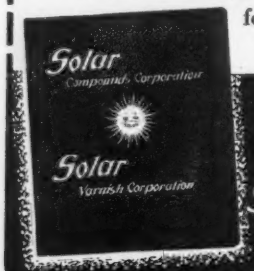
Cold Bend Tests 0°C. on AF Wire—no stiffening or cracking. Passes winding on a ½" Mandrel.

Aging Test—Ten days @ 80°C., then bend around mandrel ½" @ 0°C. There is a slight stiffening, but no breaks or cracks.

Heat Stability on #18 AF Wire @ 150°C. for 5 hrs.—0 Volts leakage after 3 hrs. in salt water @ 104°F.

In addition to this new saturant, Solar also manufactures a number of other saturating and finishing compounds for both hot and cold application, for smokeless lead wire, motion picture wire, stove wire, and large cables.

Perhaps the new saturant, or another of the Solar compounds, can help you. Our laboratory facilities and technical staff are available to you without obligation. For further information write Solar Compounds Corporation.



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Solar Varnish Corporation
1213 WEST BLANCKE STREET, LINDEN, NEW JERSEY

foreign copper. The directive also requires the National Production Authority to allocate foreign and domestic supplies of copper to domestic users on an equitable basis. On June 5, 1952, ODM modified its directive to allow the mills to reflect 80 percent of the difference between 24½ cents—the domestic price—and the prevailing price for foreign copper.)

★ ★ ★

OPS proposes to implement the ODM directive by amending Ceiling Price Regulation 68 covering brass mill products, and Ceiling Price Regulation 110 covering copper wire mill products. Also, Supplementary Regulation 46 under the General Ceiling Price Regulation (GCPR), which establishes a ceiling price of 27½ cents a pound for copper refined from foreign ores and concentrates, would be revoked by suspending price control on foreign copper under General Overriding Regulation 9 (GOR 9).

★ ★ ★

Officials said that ceiling price adjustments to reflect increased costs of foreign copper would be based on a present world price for foreign copper of 36½ cents a pound (which recognizes the price established by Chile of 35½ cents a pound, f. o. b. Santiago, plus one cent a pound to cover transportation costs to Connecticut Valley points) as against a ceiling price of 24½ cents a pound for domestic copper, and adjusted to allocations of the National Production Authority as to the use of domestic copper as against foreign copper.

★ ★ ★

Pricing factors would also be provided to reflect the current price of zinc used in brass mill products, and the use of brass mill scrap used in the production of certain brass mill products. Special provision would be made for sales to re-rollers and re-drawers of brass mill and wire mill intermediate shapes.

Technical Reports From OTS

Machining of metals by electrical and ultrasonic processes is the subject of the main article in the current issue of the Technical Reports Newsletter just released by the Office of Technical Services, U. S. Department of Commerce.

★ ★ ★

Also of interest to shopmen, in this issue of the Newsletter, are re-

views of reports on: a new light metal die-stamping process; high speed milling and reaming; gaging and measuring screw threads; and control of dust in iron foundries.

★ ★ ★

Of interest to other industrial groups are the reviews of reports on: productivity in footwear manufacture; training of managerial, supervisory, and shop personnel; and manufacture of a "stable" cake mix.

★ ★ ★

Single copies of the March, 1952 **Technical Reports Newsletter** are available without charge from the **Office of Technical Services of the U. S. Department of Commerce,** Washington 25, D. C. or from the U. S. Department of Commerce field offices.

Polyvinyl Chloride Resins

The Office of Price Stabilization has acted to restore the customary price uniformity among producers of polyvinyl chloride resins by permitting any producer whose GCPR ceiling price is less than 38¢ per pound to come up to this price. This action was taken in Supplementary Regulation 105 to the General Ceiling Price Regulation, effective June 17, 1952.

★ ★ ★

OPS explained that its action amounted to an "in-line" adjustment for the one producer who failed to take the 2¢ per pound price increase put into effect by the rest of the industry early in December 1950. At that time this producer was operating on an experimental basis, but is now in regular production.

★ ★ ★

Polyvinyl chloride resins are used to make such plastic products as tablecloths, shower curtains, wire insulation, raincoats, shoes, phonograph records, food containers and upholstery materials. In 1950 the industry produced 315,000,000 pounds of polyvinyl chloride resins valued at $117,000,000. The present price of 38¢ per pound is less than the price prevailing from 1942 to 1944.

Accurate Accounting Required By NPA

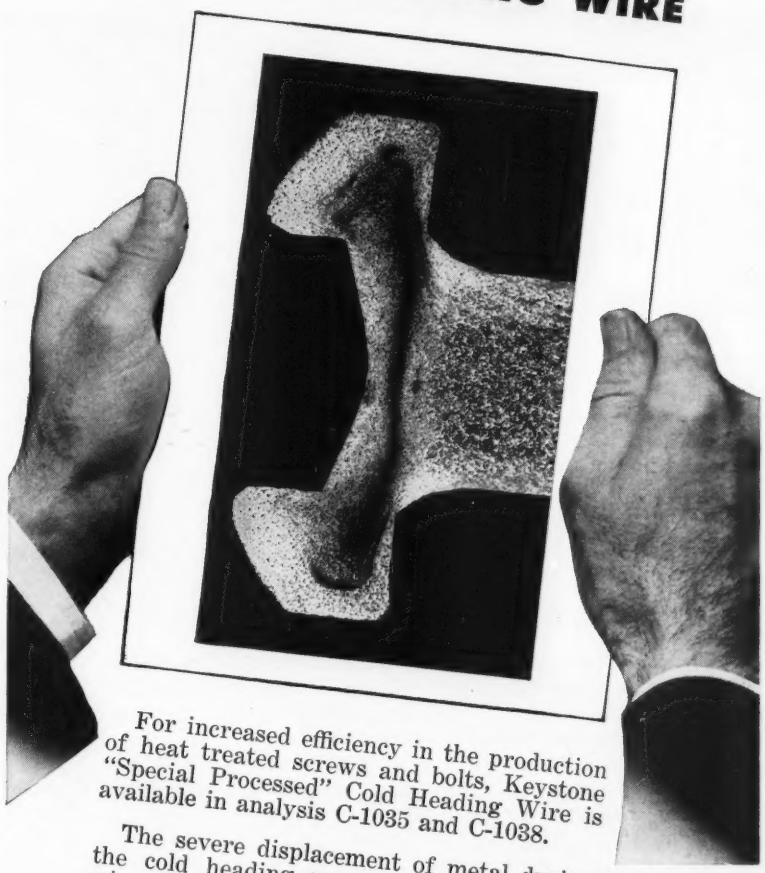
The necessity for keeping an accurate accounting of steel, copper and aluminum by users who have

Flows without a Flaw

KEYSTONE

"SPECIAL PROCESSED"

COLD HEADING WIRE



For increased efficiency in the production of heat treated screws and bolts, Keystone "Special Processed" Cold Heading Wire is available in analysis C-1035 and C-1038.

The severe displacement of metal during the cold heading process requires special wire that will flow with unbroken fibres. The above macrograph clearly indicates the excellent grain flow in a recessed-head screw made from Keystone "Special Processed" C-1012 Cold Heading Wire.

Carefully selected ingredients — our own exclusive drawing and heat treating process — rigid quality controls and inspections — give this wire unsurpassed performance on any unusually difficult cold heading job.

INDUSTRIAL WIRE SPECIALISTS

Keystone Steel & Wire Company

PEORIA 7, ILLINOIS

AMERICAN CHEMICAL PAINT COMPANY
AMBLER CHEMICALS ACP PROCESSES PENNA.

Technical Service Data Sheet
Subject: IMPROVED DRAWING AND COLD FORMING WITH GRANODRAW

INTRODUCTION:

When steel is phosphate coated with "Granodraw" prior to working it, drawing, extrusion, and other cold forming operations are greatly improved. In fact, the protective phosphate coating makes the cold extrusion of steel possible.

Getting cold steel to flow depends on the unique properties of this coating. Its non-metallic phosphate crystals are physically and chemically adapted to acquire a strongly adsorbed lubricant. The combination of adherent phosphate coating and adsorbed lubricating film possesses a low coefficient of friction while maintaining its integrity under extremely high deforming pressures.

The drawing of wire and many other cold forming operations — including the cold extrusion of steel — are greatly facilitated by the application of a "Granodraw" phosphate coating and a suitable lubricant prior to working.

"GRANODRAW" DATA

"Granodraw" zinc phosphate coating chemical is applied to pickled surfaces in an immersion or spray process. When used with a suitable lubricant, the coating reduces friction under conditions of low, medium, or high deforming forces encountered in such typical operations as: cold extrusion of steel; cold shaping; deep drawing (tubs, cartridge cases, shells, etc.); stamping; drawing of wire and tubing; ironing; necking; nosing; and upsetting.

ADVANTAGES OF PHOSPHATE COATING WITH "GRANODRAW" PRIOR TO COLD FORMING STEEL

The following are among the advantages indicated for phosphate coating with "Granodraw" prior to cold forming steel:

Drawing of wire, bars, tubing, etc. — Improved lubrication; improved surface; less scratching; reduced pull; greater percent reduction per pass; reduced die wear; longer die life; lower die maintenance and cost; reduction in corrosion.

Drawing of stampings, shells, shell cases, etc. — Improved lubrication; reduced breakage; reduction in scrap; deeper draws; less scratching; elimination of some annealing; less wear on dies.

Cold Extrusion — Improved lubrication; increased strength of parts; improved surface; reduction in load on press; greater dimensional accuracy; more uniform wall thickness; longer extrusions; elimination of some annealing; less corrosion.

CHEMICALS ACP PROCESSES

WRITE FOR FURTHER INFORMATION ON "GRANODRAW" AND ON YOUR OWN METAL PROTECTION PROBLEMS.

CHEMICALS ACP PROCESSES

received Controlled Material Plan Allotments from the National Production Authority, has been emphasized by **John F. McKiernan,** New York regional director of the U. S. Department of Commerce.

★ ★ ★

During the coming months, regardless of revisions in NPA regulations, as governed by changing conditions, NPA will accelerate its policy of enforcing compliance with all regulations controlling the flow of vital materials to American industry, he stated.

★ ★ ★

In this connection, inventory auditing and spot checks by the Compliance Branch of the New York regional office have disclosed in some instances a lack of understanding of NPA requirements for maintaining accurate records to show the use of materials allotted. While NPA requirements indicate that no particular system of allotment accounting is specified, nevertheless records must be such as to lend themselves to examination and audit at any time. Manufacturers operating under CMP procedure are required to record each production schedule or allotment symbol showing allotment granted, re-allotments if any, purchase orders placed against allotments and the allotment balance.

★ ★ ★

Mr. McKiernan pointed out that NPA's basic pamphlet, "Allotment Accounting for Consumers under CMP" furnishes simplified guidance to the general form of allotment bookkeeping considered adequate. The pamphlet is obtainable without charge at the New York regional office of the U. S. Department of Commerce at 2 West 43rd Street as well as at all NPA district offices. Personal guidance on specific allotment accounting problems is also available at these offices.

Ordnance Division Reorganized

The Ordnance Development Division of the National Bureau of Standards has been reorganized into three new divisions and three new division chiefs have been designated. In addition an Associate Director for Ordnance Development has been appointed.

☆ ☆ ☆

Wilbur S. Hinman, Jr., former chief of the Ordnance Development Division, was appointed to the newly established position of Associate Director. Mr. Hinman will coordinate NBS work in the field of ordnance research and development.

★ ★ ★

The NBS ordnance program is concerned with research, development, and engineering of electronic ordnance devices—in particular, proximity fuzes for a wide variety of weapons. The Bureau serves as a primary developmental facility for the Army Ordnance Corps and through that agency fulfills needs of the Army, Navy and Air Force for particular electronic ordnance items. The three divisions and their chiefs are: Division 13, Ordnance Development Program A, with **M. G. Domsitz as chief;** Division 16, Ordnance Development Program B, with **Jacob Rabinow** as chief; and Division 17, Ordnance Development Program C, with **Dr. Harold Goldberg** as chief.

Imported Copper

The Office of Price Stabilization has exempted from price control all sales of foreign primary copper and copper refined from imported ores, concentrates, and imported raw materials including scrap. The exemption is conditioned upon the maintenance of proper records subject to inspection by the OPS.

★ ★ ★

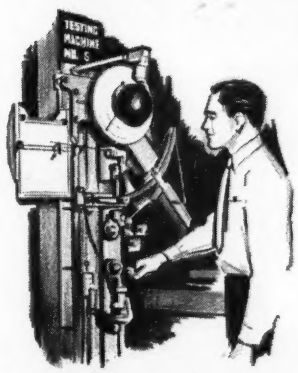
This action is in conformance with and carries out the policy announced by the Acting Director of the Office of Defense Mobilization on May 21, 1952, as modified on June 5, 1952.

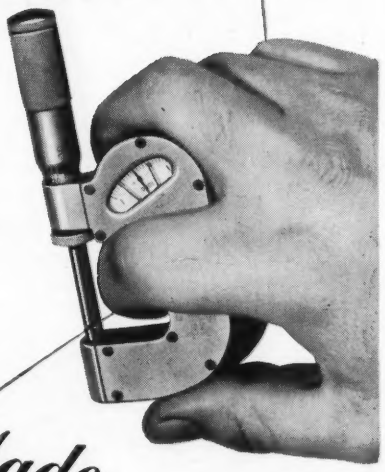
★ ★ ★

This action has the effect of revoking Supplementary Regulation 46 to the General Ceiling Price Regulation (GCPR), which set a ceiling price of 27½ cents a pound for sales of certain quantities of copper refined from imported raw materials. Also, it removes sales of foreign primary copper from the GCPR. SR 46 became no longer applicable with the termination by Chile on May 8, 1952, of its agreement to sell a major portion of its copper output to the United States at 27½ cents a pound.

★ ★ ★

JOHNSON

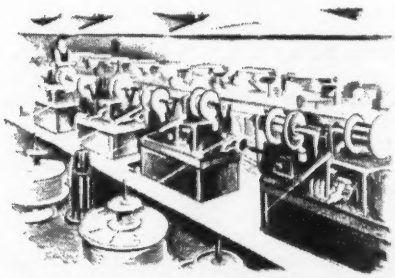




Custom-Made

Specialty Wires

A quarter of century of progress —new and better ways to produce custom-made specialty wires, wires of absolute uniformity of prescribed physical and metallurgical properties and drawn exactly to the size which best meets your requirements.



"Johnson Sets the Standard of the Industry"

JOHNSON

JOHNSON STEEL and WIRE CO., INC.

Worcester 1, Massachusetts

SUBSIDIARY OF PITTSBURGH STEEL COMPANY

Cover non-metallic sheathed cable, building wire and weatherproof wire

1800 feet an hour

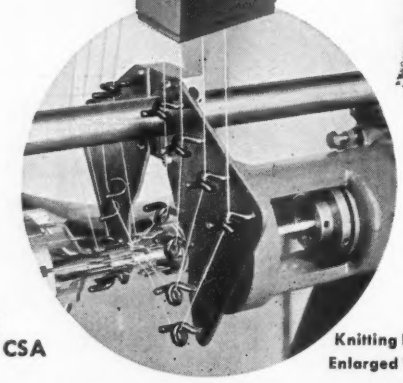
with

Fidelity **SINFRA**

KNITTERS

Model C-3H Knitter & Haul-Off Reel Stand

- ★ Increase speed 10-15 times
- ★ Save on cost of yarn
- ★ Boost labor output 600%
- ★ Eliminate yarn rewinding
- ★ Conserve floor space
- ★ Cut maintenance costs
- ★ Reduce power requirements
- ★ Minimize operating noise
- ★ Improve working conditions
- ★ Provides automatic control
- ★ Lower your capital investment
- ★ Approved by UL, ASA, AAR, CSA



Knitting Head Enlarged View

This *Fidelity Sinfra* Wire Covering Machine offers you high production speed and low operating cost. The output of *one* Knitter equals 15 conventional machines. Savings in yarn costs and direct labor alone pay for this new equipment in 12 to 24 months. Knit products are universally used and meet all standards.

The modern Fidelity Sinfra method uses fewer yarns and large 3 pound cones located on a stationary creel. High-speed, rotating Knitting Heads cover the wire at 30 or more feet per minute. Design permits horizontal operation at convenient working level with no crawling or stretching. Automatic electric stop motions and other advanced features cut maintenance and down time.

To see why top companies choose Fidelity, read our literature proving its advantages. Write today for Catalog W.

Manufacturers of intricate precision machinery since 1911

FIDELITY MACHINE COMPANY INC.

3908 FRANKFORD AVE. • PHILADELPHIA 24, PA.

Under the ODM directive to OPS, brass and copper wire mills will be allowed to reflect in their ceiling prices 80 per cent of the difference between 24½ cents a pound—the domestic price for copper—and the prevailing price for foreign copper. Also, under the directive the National Production Authority will allocate foreign and domestic supplies of copper to domestic users on an equitable basis.

★ ★ ★

In order to further implement the ODM directive, OPS will issue amendments to its Ceiling Price Regulation 68 covering brass mill products, and Ceiling Price Regulation 110 covering copper wire mill products, to permit these producers to adjust their ceiling prices to reflect 80 percent of the increased cost of foreign copper.

★ ★ ★

The action is covered by Amendment 21 to General Overriding Regulation 9, effective June 25, 1952. It requires persons selling or buying foreign copper, and refiners of foreign copper-bearing raw materials, to prepare and keep for inspection by OPS for a period of two years, records showing the details of each sale and purchase.

More Cryolite For Aluminum Production

The amount of cryolite available to the aluminum industry during the next 12 months will be more than doubled under terms of a contract negotiated by the Defense Materials Procurement Agency with the Pennsylvania Salt Manufacturing Co., of Philadelphia.

★ ★ ★

This company is the sole American producer of cryolite, which it markets under the trade name of Kryolith. The chemical is used extensively in the manufacture of aluminum, where it is employed as a flux in reducing alumina, a powder, to the solid metal.

★ ★ ★

The only known commercially-workable deposit of cryolite ore in the world and the one place where it is mined is in Ivigtut, Greenland. It is owned by the Danish State and operated under concession by a Danish company, which also operates a cryolite plant in Copenhagen.

The output of crude ore normally is divided about equally by the company with the Pennsylvania Salt Manufacturing Co., whose processing plant is located near Pittsburgh.

★ ★ ★

The contract involves payment of a premium price to the Danish company for extra ore to be produced by stepping up its mining operations. Under this arrangement the American company will receive an allotment of 31,000 long tons of ore during the year instead of the normal 12,000 long tons.

Machinery Revised Price Lists

The Office of Price Stabilization has authorized resellers of machinery and related manufactured goods to use manufacturers' published price lists which have been approved by OPS, even though discounts or margins established by these price lists are not identical to those in effect on June 24, 1950.

★ ★ ★

This authorization is covered by Supplementary Regulation 2 to Ceiling Price Regulation 67, effective June 25, 1952.

★ ★ ★

CPR 67 does not permit the use of manufacturers' published price lists where the discounts are not identical to those in effect on June 24, 1950. Today's action, however, permits use of these price lists if the reseller receives notification from the manufacturer that the price lists have been approved by OPS.

★ ★ ★

Manufacturers may apply to OPS under the new supplementary regulation for approval of revised price lists, and generally speaking, these price lists will be approved if it is shown that resellers' average margins will be approximately the same as before the issuance of the revised price list.

★ ★ ★

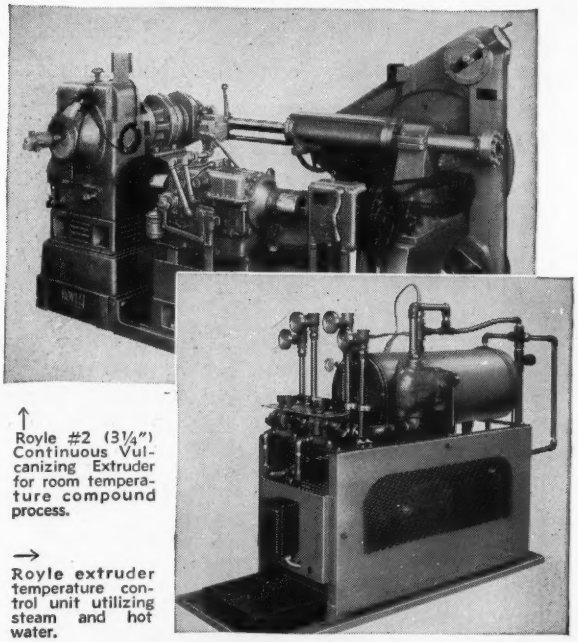
SR 2 is designed to facilitate pricing under CPR 67 by permitting resellers to use their historical practice of establishing resale prices on the basis of manufacturers' published price lists even though minor changes have been made in the price lists which do not affect the reseller's over-all realization or mar-

Of Particular Importance

To the Wire Insulating Industry

The room temperature compound process and associated equipment recently developed by the Western Electric Company, Incorporated, offer nine important advantages. These advantages begin with the storage of completely mixed, ready-to-extrude, rubber, GR-S, or Neoprene compounds and extend to a smoother and improved appearance for the finished product.

The complete extruder vulcanizing portion of the room temperature compound process is available to insulated wire producers* from John Royle and Sons who, for seventy-two years, have been building extruding machines to meet the most exacting process requirements.



↑ Royle #2 (3¼") Continuous Vulcanizing Extruder for room temperature compound process.

→ Royle extruder temperature control unit utilizing steam and hot water.

CHECK THESE ADVANTAGES:

- Improved diameter control
- Reduction in compound scrap
- Reduction in electrical faults
- Permits storage of completely mixed compounds
- Permits more economical scheduling of mixing equipment
- Eliminates "warm-up" operation
- Possible mill-room economies
- "Hot" machines may be converted
- Finished product has smoother finish—better appearance

Licensees of Western Electric Company

JOHN ROYLE & SONS
10 ESSEX STREET, PATERSON 3, NEW JERSEY

AMERICAN CHEMICAL PAINT COMPANY

AMBLER CHEMICALS ACP PROCESSES PENNA.

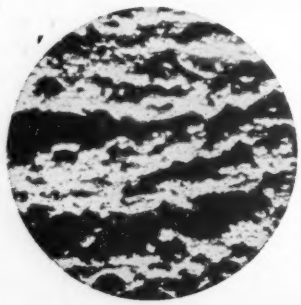
Technical Service Data Sheet

Subject: EFFICIENT PICKLING WITH RODINE®

ADVANTAGES OF "RODINE"

RODINE is used in sulfuric and muriatic acid baths for improved pickling and increased production. It meets Government Specification U.S.N. 51-I-2.

In straight line pickling of wire, rod and tubing, RODINE makes available more metal for drawing by protecting steel from acid attack. In batch pickling of sheet steel, RODINE improves the surface. In rapid, continuous strip pickling, RODINE not only saves acid and metal, but also prevents over-pickling during line shutdowns.



◀ *This steel surface was pickled in an uninhibited acid bath. Note the deep pits, and that the surface is visibly crystalline.*

This surface was pickled exactly like the one above except that "RODINE" was added to the acid solution. Only scale pockets and roll marks are visible; no pitting occurred. ▶

CHEMICALS ACP PROCESSES **WRITE FOR DESCRIPTIVE FOLDER ON "RODINE" AND INFORMATION ON YOUR OWN PICKLING PROBLEM.** CHEMICALS ACP PROCESSES

gin.

★ ★ ★

Concurrently, OPS has issued Amendment 33 to CPR 30, covering manufacturers of machinery and related manufactured goods, which permits these manufacturers to apply to OPS for approval of published list prices where the manufacturer was in the process of revising his list prices before June 24, 1950, and actually put such revised list prices and discounts into effect before January 25, 1951. Also, OPS has issued Amendment 8 to CPR 67, which permits resellers to use manufacturers' published list prices approved by OPS under Amendment 30 to CPR 30. Both of these amendments are effective June 25, 1952.

★ ★ ★

Manufacturer's applications for OPS approval of revised published list prices and discounts must be filed with the Industrial Materials and Manufactured Goods Division, OPS, Washington 25, D. C. Such revised list prices and discounts may not be used or put into effect until written approval has been given by OPS.

Entertains Austrian Engineers

On Wednesday, June 18, **Catalytic Combustion Corporation,** Detroit 8, Michigan acted as host to the Austrian Insulated Wire and Cable Team of Engineers, brought to this country under the auspices of Mutual Security Agency Washington, D. C.

★ ★ ★

Interest in Catalytic Combustion Corporation's development of a low temperature fume combustion process, as covered by technical articles which have appeared in "Wire and Wire Products", is rapidly accelerating in European countries. While continuing effort toward Air Pollution Control is being made by Austrian Wire-enamelers, due to higher fuel costs, emphasis is being placed on savings which result from converting noxious fumes to recoverable heat energy by catalytic combustion.

— WIRE MEN —

Join THE WIRE ASSOCIATION and enjoy the benefits of affiliation with other men engaged in wire production work.

Outstanding Personalities of the Wire Industry

Batchelor Named Head Of Riverside Metal Co.

The board of directors of the **Riverside Metal Company,** manufacturers of high quality, copper base alloys have announced the election of **M. W. Batchelor** as president of the company.

★ ★ ★

Mr. Batchelor was educated at Columbia University and Detroit University in both business administration and engineering, and has worked in the non-ferrous metal industry for more than twenty-five years. During this time he was associated with Revere Copper & Brass Company, was executive vice president of Bridgeport Brass Company, and manager of the Cleveland, O., mill of the Chase Brass & Copper Company.

★ ★ ★

During World War II, Mr. Batchelor was invited by the Government to join a commission as a non-ferrous representative to survey Europe.

Torrington Sets Up Spring Coiler Division

Dudley B. Robinson, vice president in charge of sales, **The Torrington Manufacturing Co.,** Torrington, Conn., has announced that a separate division has been established for sales and other activities in connection with the company's production of spring coilers, spring testing instruments and other spring-making machinery.

★ ★ ★

He said the growth of the spring coiler business over the 15 years the company has been serving the spring-making industry has necessitated separation of this phase of the business from the mill machinery section of the Machine Division.

★ ★ ★

John C. Bate, formerly assistant sales director of the Machine Division, has been promoted to sales director of the new Spring Coiler Division.

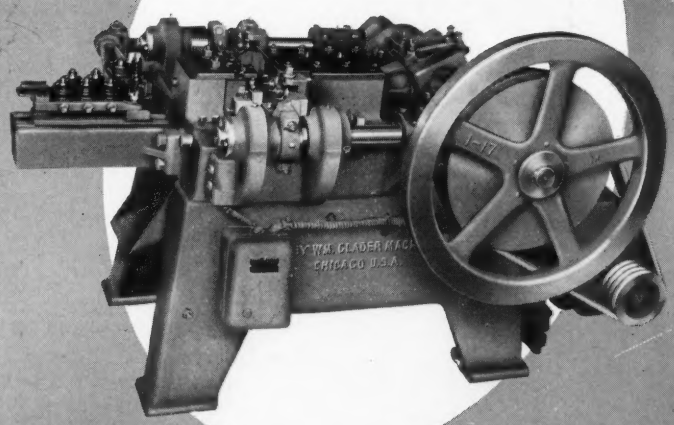
Made Vice President Of Standard Mill Supply

Charles A. Knutton, Jr., formerly Assistant Secretary of the **Standard Mill Supply Company,** 1080 Main Street, Pawtucket, R. I., has been appointed Vice President and Manager of Standard Mill Supply, Inc., 2319 Hutchinson Avenue, Charlotte 1, North Carolina. The appointment becomes effective on August 15, 1952. Mr. Knutton will take over the duties of A. Benson Davis, who recently resigned from the same position.

Bethlehem Pacific Coast Steel Promotes Two

Bethlehem Pacific Coast Steel Corp. has promoted **L. A. Anderson** from assistant general superintendent of its South San Francisco plant to succeed the late **W. C. Eshelman,** and **George W. Teskey** appointed to succeed **C. W. Jones,** retired, as superintendent of the open-hearth department.

high efficiency — low cost
with GLADER wire nail machines



Eliminate costly down-time in the Nail Mill by replacing obsolete machines with new GLADER NAIL MACHINES . . . For tops in efficiency and economical operation use GLADERS.

WM. GLADER
MACHINE WORKS
210 N. RACINE AVENUE • CHICAGO 7, ILLINOIS

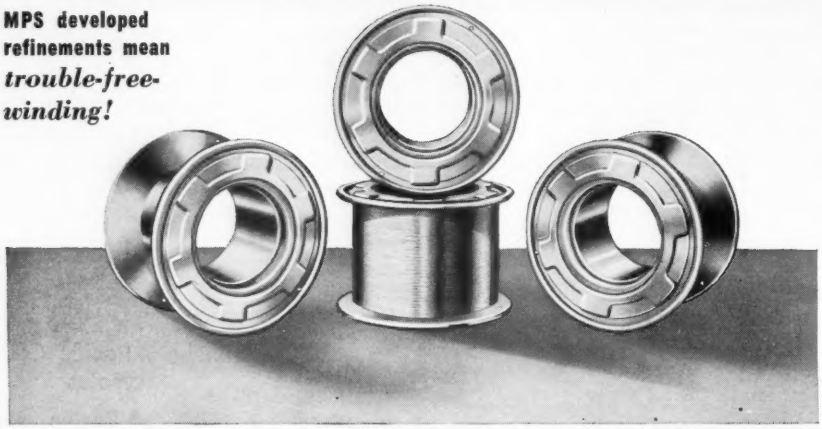
Export Dept.: 122 E. 42nd STREET, NEW YORK 17, N. Y.

Spool Headaches Eliminated

when MPS. HEAVY DUTY NO-CREV SPOOLS

are used in the drawing of the finest wire at high speed

MPS developed refinements mean *trouble-free-winding!*



SIZES

*6	x	3½	x 3½
6	x	6	x 3½
6½	x	3½	x 3½
6½	x	6	x 3½
8	x	6	x 4½
8	x	8½	x 4½

and others

* Illustrated

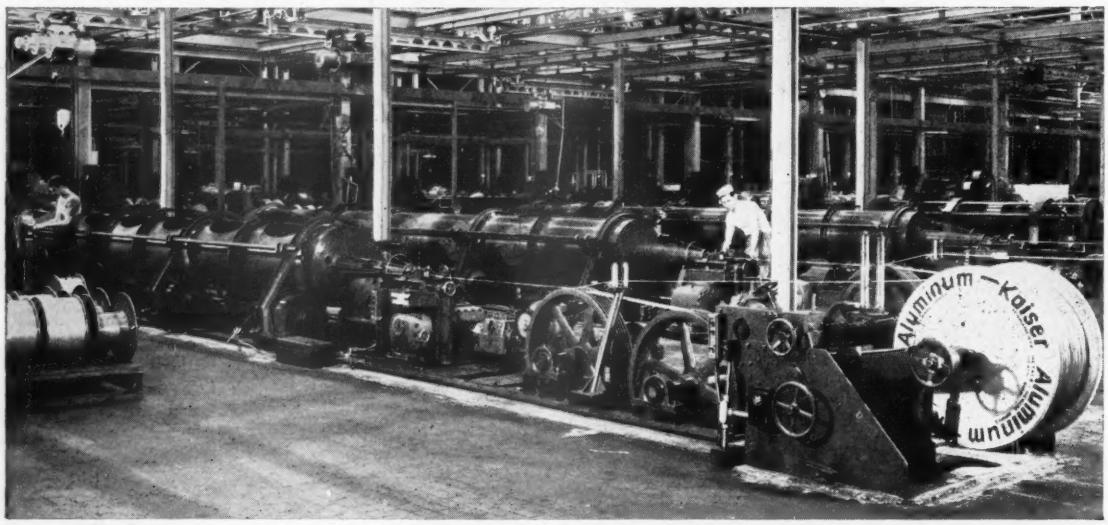
MOSSBERG PRESSED STEEL CORP.

18 WEST STREET — ATTLEBORO, MASSACHUSETTS, U.S.A. — Telephone Attleboro 1-0847 & 1-0848

James Day (Machinery), Ltd., 28 Maddox Street, London, W. I. England — # 104

NEW 22" SPOOL 750 RPM TUBULAR STRANDER

HYDRAULIC LIFT REEL STAND — INFINITELY VARIABLE TRAVERSE AIR CONTROLLED
DOUBLE DRUM HAUL-OFF WITH LINK BELT P.I.V. — AIR OPERATED BRAKING SYSTEM



HMT — ESTABLISHED 1946 — HUGHESVILLE MACHINE & TOOL COMPANY — WIRE & PROCESS MACHINERY

Hi-Efficiency

HUGHESVILLE MACHINE & TOOL CO.
54 ACADEMY STREET
HUGHESVILLE, PA.
'Phone: 129-A

Union Spring Elects Officers

H. C. Bughman, Jr., has been elected chairman of the board of directors of the **Union Spring & Mfg. Co.,** New Kensington, Pa., **W. F. McCabe** elected president and **Clarence Abitz,** vice president.

Seven Named For Regional Posts

Seven regional industrial sales managers have been named by **Minneapolis-Honeywell Regulator Company.** The regional post is new and is part of a move to give industrial field men more responsibility, the company announced.

★ ★ ★

Those appointed and the regions in which each will have charge are: **Jack E. MacConville,** the Southeast with headquarters in Atlanta; **Alfred J. McCullough,** the Central region with headquarters in Cleveland; **Howard L. Marston,** the Northwest with headquarters in Minneapolis; **Robert L. Mallory,** the Southwest with headquarters in Dallas; **Robert B. Grant,** the Pacific and Mountain region with headquarters in Los Angeles, and **Lester W. Williams,** the Pacific Northwest with headquarters in Portland.

★ ★ ★

The appointment of **John A. Robinson** for the Eastern and Mid-Atlantic regions was announced recently.

Hooker Appoints Research Head

Hooker Electrochemical Company has announced the appointment of **Charles A. Strack** to head up research and testing work in its new Virgo Salt laboratory at Niagara Falls, New York. The new laboratory has just been completed and will be used for research and development work in various formulations for metal cleaning compounds. The facilities of the laboratory will also be available for testing and demonstration work for customers.

International Paper Appoints Western Representatives

W. S. Snyder, Manager of the **Container Division, International Paper Company,** has announced the appointment of **S. B. DeMian** as Manager of Western Sales.

Mr. DeMian, who joined the Container Division in 1945, has been Manager of the Division's Chicago Plant since 1949. He will succeed C. F. Buckley, Manager of the Container Division's Kansas City Plant, who has also served as Western Sales Manager.

★ ★ ★

Mr. Buckley will continue to manage the Kansas City Plant.

★ ★ ★

Succeeding Mr. DeMian as Manager of the Chicago Plant, will be **S. R. Van Horne, Jr.,** presently Assistant Sales Manager at Chicago.

Joins Pennsalt's Research & Development Laboratories

John E. Hawley has joined the **Pennsylvania Salt Manufacturing Company's Research and Development Division** at the Whitemarsh Research Laboratories, Wyndmoor, Pa.

★ ★ ★

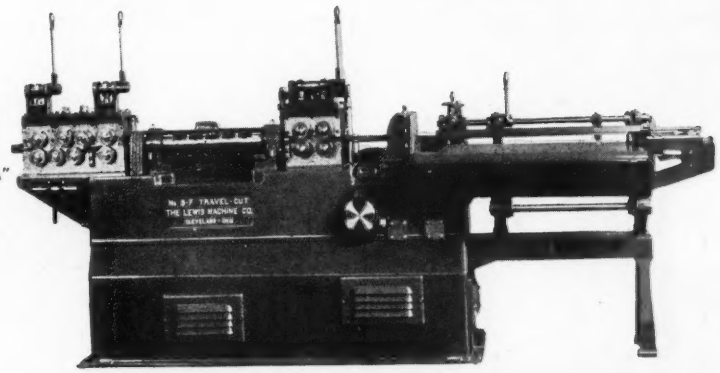
Previously on the Engineer of Tests staff of the Baltimore and Ohio Railroad, Mr. Hawley's new duties will involve the development of cleaning compounds for the transportation industry.

Fast, Accurate, Economical

STRAIGHTENING and CUTTING

with LEWIS **TRAVEL-CUT**

MACHINES



22 Models to handle from 1/16" to ¾" Round, Hex, Flat, Shapes.

Simple in design, rigid in construction, Lewis TRAVEL CUT will deliver continuous dependable service under the most severe, high production conditions—day in, day out. Feeds wire from the coil, straightens accurately, gauges to uniform length, and cuts clean without stopping the wire. For steel, brass, aluminum and alloy wire. Cut your cutting costs with the Lewis TRAVEL CUT. Full details on request.

Exclusive Representatives

EAST: Penn Machinery Co., 117 North Third Street, Philadelphia 6, Penn.

MIDDLE WEST: Steel & Wire Machinery Co., 15457 Euclid Ave., Cleveland 12, O.

CENTRAL: Moslo Machinery Co., 2443 Prospect Avenue, Cleveland 15, Ohio.

WEST COAST: Hoffman & Heartt, 3005 So. Grand Ave., Los Angeles 7, California

CANADIAN: Empire Engineering Co., 11 Wellington St. E., Toronto 1, Ontario.

CONTINENTAL EUROPE: Gaston E. Marbaix Ltd., Devonshire House Vicarage Crescent, London S. W. 11, England.

The LEWIS MACHINE Company

3441 E. 76th Street, Cleveland 27, Ohio

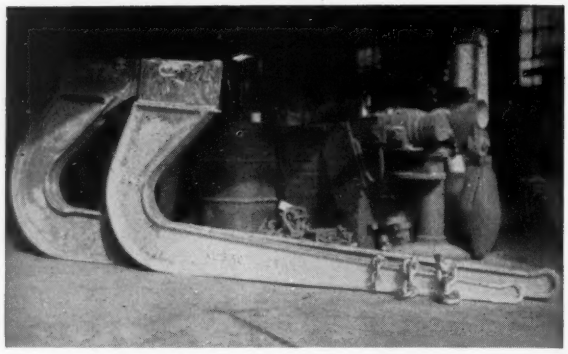
Also agents in Paris, Stockholm, Rotterdam, Brussels, Zurich, Milan, Bombay and Melbourne

Use "ALBRO" METAL

HAIRPIN HOOKS *and other* PICKLING EQUIPMENT *for economy*

THEY LAST!

1. We specialize in the manufacture of pickling equipment.
2. Our engineers are at your service to help you on pickling problems.
3. We build equipment to your specifications.
4. Send us your drawings and let us quote.
5. Write, wire or telephone.



Other "ALBRO" METAL products are:
CRATES, BEAMS AND HANGERS

ALBRO METAL

BRONZE DIE CASTING CO.

FRANKLIN ST. AT OHIO RIVER
PITTSBURGH 33, PA.
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MEYER, ROTH + PASTOR

MASCHINENFABRIK

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GERMANY

A new

Universal Multi-Slide Bending Machine

for the full-automatical and economical manutacture of mass-produced articles of all kinds from wire and strip.

Special features:

- Vertical structure, covered construction, smallest space requirements.
- Bending slides positively moved and directly steered, therefore high output and fool-proof operation.
- Exact wire feed by a special steered pressing device.
- Simple shaped tools, easy to supervise, to adjust, and to exchange.
- Possibility to use further slides for unusual bending shapes.
- Additional equipment for stamping, punching, and piercing.

Please enquire for our detailed catalogue-sheet which will inform you about working ranges and employments of our Multi-Slide Bending Automatics.

Acquires Complete Ownership Of Canadian Firm

S. W. Farnsworth, president, and **Dudley B. Robinson**, sales vice president, **The Torrington Manufacturing Co.**, Torrington, Conn., announced that **Torrington Impellers, Ltd.**, Oakville, Ont., incorporated in 1949, has become a wholly-owned subsidiary.

★ ★ ★

All personnel with Torrington Impellers will continue with the the company as in the past, including **Charles M. Pullen**, son of the late **Hugh C. Pullen** who represented Torrington in Canada for 16 years and who incorporated Torrington Impellers with **Miss Dorothy K. Robinson.**

☆ ☆ ★

Pending establishment of a complete organization in Canada, the activities of the Canadian company will be assisted and guided by the parent company.

☆ ★ ☆

The Oakville plant is equipped to assemble Torrington "Vairified" fan blades now and will shortly be assembling popular sizes of Airotor blower wheels, as well as producing propeller fans in special pitches.

Reelected Vice President OF MAPI

Morehead Patterson, chairman of the Board of Directors and president of **American Machine & Foundry Company**, has been reelected a vice president of the Machinery & Allied Products Institute.

★ ★ ★

Named to MAPI's executive committee in May 1950, Mr. Patterson was elected a vice president of the Institute a year later.

Changes Made By Alcoa

Frank L. Magee, vice president and general production manager of **Aluminum Company of America**, has been elected a director of the company by action of ALCOA'S board of directors.

★ ★ ★

At the same meeting, the board announced the retirement of **J. R. D. Huston** as secretary, a position he has held for the past eight years.

★ ★ ★

Alfred M. Hunt, a member of the board of directors, was elected to succeed Mr. Huston. Mr. Hunt has been assistant secretary since June, 1950.

★ ★ ☆

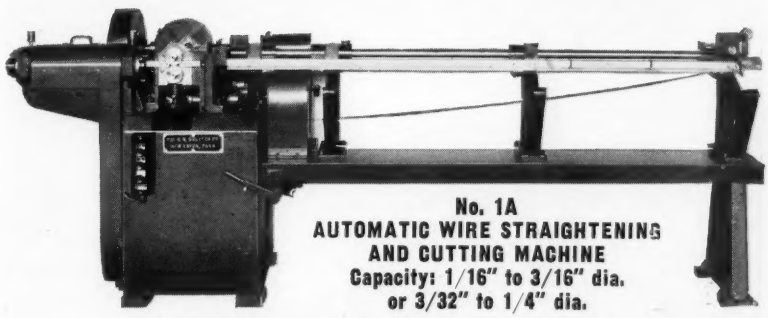
Mr. Magee's elevation to the board comes after 34 years with ALCOA. Following graduation from Lehigh University, Mr. Magee started with ALCOA as a sales apprentice in the New Kensington Works in 1917.

Elected Director Of Rome Cable

Rudolph A. Schatzel was elected a director of **Rome Cable Corporation** by its Board of Directors on June 18, 1952. Mr. Schatzel, an engineering graduate of Union College, has been closely connected with the electrical wire industry for the past twenty-eight years. After serving as chairman of several technical wartime government committees, in 1945 he was selected a member of the Technical Industrial Intelligence Rubber Team to investigate production and technology of the German Rubber Industry. Upon his return to this country he joined Rome Cable of which concern he is presently a Vice President and Director of Engineering and Research.

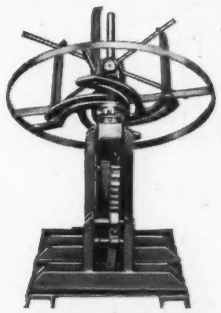
☆ ★ ★

A "SHUSTER" *automatically* boosts production in wire-using plants!



No. 1A
AUTOMATIC WIRE STRAIGHTENING AND CUTTING MACHINE
Capacity: 1/16" to 3/16" dia. or 3/32" to 1/4" dia.

Wherever a Shuster is installed, production increases as high as 75 percent have been recorded. Shusters take wire from coil stock, then straighten and cut it to accurate lengths, all in a smooth, precision operation noted for the almost continuous wire travel. Once set, Shusters require little attention beyond keeping them supplied with coils. Sizes available for .025" to 11/16" dia. wire; shapes, flat stock, tubing. Write us your requirements.



SHUSTER WIRE REELS
The counterbalancing weight does practically all the lifting, permitting one man to raise the heaviest coils of wire to the operating position.

Mfd. by **METTLER MACHINE TOOL, INC.**
132 W. Lawrence St., New Haven, Conn.
Representatives in all principal cities and in foreign countries.

SHUSTER *Automatic* Since 1866 WIRE STRAIGHTENING AND CUTTING MACHINES

Made Director Of Research By Anaconda

To co-ordinate its product development and research activities under a planned, over-all company program, **Anaconda Wire & Cable Company** has created a new research department to include the Engineering Laboratories at Hastings; the Magnet Wire Research Laboratory at Muskegon, under **H. L. Saums;** and the Rubber Products Development Laboratory at Marion, under **H. C. Witthoft.**

★ ★ ★

The new director of research for the company is **H. E. Thompson,** formerly manager of quality control, which department encompasses all inspection and testing activities.

★ ★ ★

Product development activities of the company will be guided by a Research and Development Committee recently formed. Its members include: **L. F. Hickernell,** chief engineer; **D. E. Allen,** sales manager; **R. B. Steinmetz,** general manager of mills, with **Mr. Thompson** as chairman.

★ ★ ★

The group will meet periodically to review and correlate Anaconda's research activities with company sales, engineering and production plans. The department itself will work closely with the several specialists on Anaconda's engineering, sales and production staffs, whose broad experience qualifies them in their particular fields.

★ ★ ★

Harry E. Thompson joined the Anaconda Wire & Cable Company in January, 1932 after spending the years from 1919 to 1931 with the Brooklyn Edison Company. When he left the latter company he was assistant engineer in charge of cable engineering work.

★ ★ ★

At Anaconda, until 1939, he was the electrical engineer of the Pawtucket, R. I., mill where he specialized in development and research on rubber insulated cables.

★ ★ ★

In 1939 he became supervisor of the engineering laboratories at Anaconda's Hastings mill, a position he held for the next three years. The mill specializes in development research problems in paper insulated power cable and associated types of products.

★ ★ ★

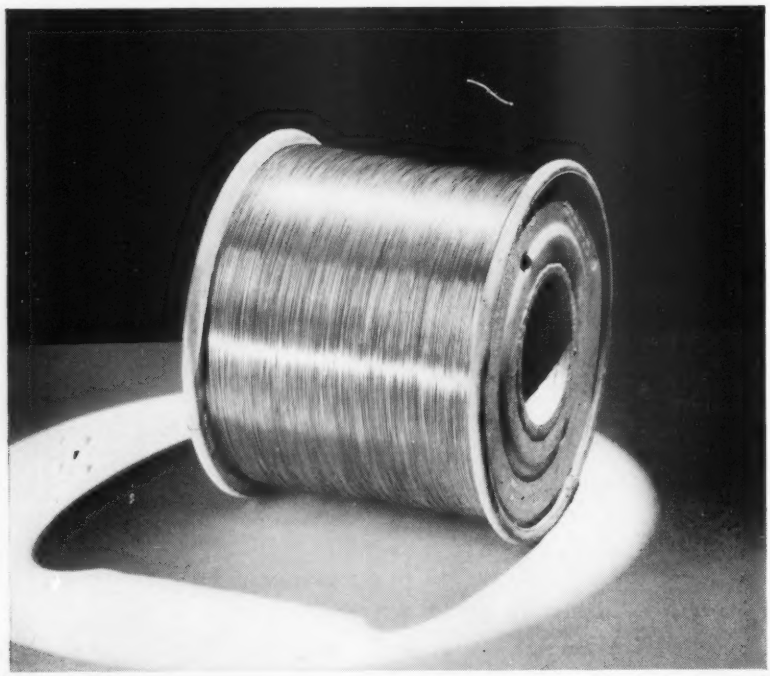
He was made chief inspector of all plants in 1942. The scope of his work was enlarged in December 1948 to include quality control under the title of manager of quality control.

Reynolds Metals Announces Changes In Sales Personnel

The appointment of **Fitz L. Sargeant** as regional general manager of the South central region sales office of **Reynolds Metals Company** was announced recently by **I. P. Macauley,** vice president in charge of regional sales, Reynolds Metals Company, Louisville, Ken. Mr. Sargent will have his headquarters at 4144 Lindell Boulevard, St. Louis, Mo.

★ ★ ★

Mr. Sargent is a native of Louisa, Va. After graduating from Lane High School, Charlottesville, Va., he attended the University of Virginia until 1940. He joined the staff of Reyonlds Metals Company in 1941. His background includes purchasing, process engineering, and as



STAINLESS STEEL WIRE

Complete range of sizes from .0005" to .200". All tempers—hard, medium hard and soft. Bright lustrous finish. To your specifications, including wire of low magnetic permeability. In coils or on metal spools. Made in completely equipped plant for the manufacture of stainless steel wire exclusively.

HK WIRE CORP.
WORCESTER • MASSACHUSETTS

a salesman and district manager in the former Aluminum Division. Eight of the eleven years he has spent with Reynolds have been in the Kansas City and St. Louis areas. For the past year and a half he has been industrial sales manager, Eastern region at New York.

★ ★ ★

The South central sales region covers Missouri; Kansas; Colorado; Grand and San Juan Counties, Utah; Apache County, Ariz.; New Mexico; Texas; Oklahoma; Arkansas; Louisiana; Mississippi; Western Tennessee; Southern Illinois; Southwestern Kentucky.

Keystone Men Promoted

Promotion of **R. M. Barrick** and **R. J. Mott** has been announced by **W. H. Getz,** sales manager, Merchant Trade Division, **Keystone Steel & Wire Company.**

★ ★ ★

Mr. Barrick, who formerly represented Keystone in the Kansas-Oklahoma area, has been transferred to the West Texas-New Mexico territory. He succeeds longtime Keystone salesman **F. C. McKnight,** who recently passed away.

★ ★ ★

Mr. Mott has assumed Barrick's former duties in Kansas and Oklahoma.

★ ★ ★

Mr. Barrick will headquarter at Lubbock, Texas, while Mott has established his permanent residence in Kansas City, Missouri.

G. C. Wilder Elected President And Director Of The Macwhyte Co.

At a special meeting of the board of directors of **Macwhyte Company,** wire rope manufacturers, **George C. Wilder** was appointed a director to fill the unexpired term of the late **Jessel S. Whyte,** and was elected president of the company.

★ ★ ★

Mr. Wilder was vice president and assistant general manager and has served in various capacities since joining the company in 1938 after receiving a B.A. degree from Cornell University.

★ ★ ★

Other officials of Macwhyte Company are: **H. E. Sawyer,** vice president and treasurer; **R. B. Whyte,** vice president in charge of operations; **R. P. Tyler,** vice president in charge of sales.

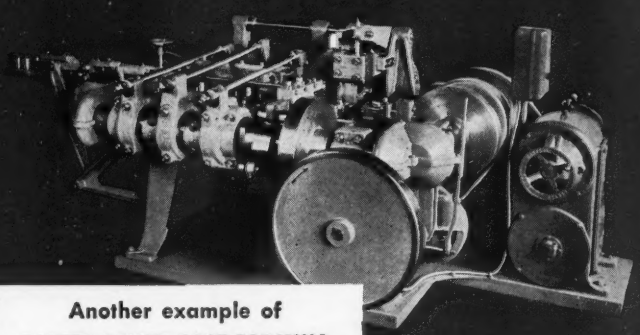
Cowles Sales Meeting

The field staff participated in the annual sales conference of the Metal Cleaner Department of **Cowles Chemical Company,** held recently in in Cleveland. Instruction and discussion sessions were held on Cowles Metal Cleaners, company sales efforts, and new product development to give the metal working industry up-to-the-minute service for better cleaning quality and economy.

J. S. Thompson New V.P. Of Townsend

J. S. Thompson was appointed to the newly created position of vice president, **Townsend Co.,** New Brighton, Pa., with responsibility of maintaining contacts with customers, prospects and with industrial trade and professional groups. **H. E. Chilcoat** was appointed general sales manager to succeed Mr. Thompson.

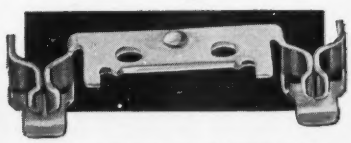
PRODUCTION RECORDS *Broken* with NILSON 4-SLIDE *Machine!*



Another example of
FASTER, LOWER COST FORMING
of Ribbon Metal Stock

180 Terminal Contacts Per Minute

7 Separate Operations Eliminated



A famous national manufacturer tripled production of the Terminal Contact illustrated above (in actual size) and reduced production costs proportionately by replacing several progress die set-ups with one Nilson S-3-F four side machine. *Seven separate operations were eliminated;* 180 completed contacts produced per minute. Time required for tooling changes was reduced 50% over similar type machines.

This example clearly shows the big savings you can make in overhead, maintenance, labor and time with a Nilson 4-slide!

Taking stock directly from the coil, NILSON metal ribbon stock four-slide machines automatically feed, straighten, pierce, blank, swage, stamp, coin, cut off and perform up to five forming operations with speed and accuracy. Built in five models with capacities up to 2½" wide and feed lengths up to 15". For specific recommendations on your wire and ribbon metal forming problems, send details, prints or samples of your operation to us when you request the bulletin.

THERE'S NOTHING LIKE A NILSON

Specialists in Wire Forming Equipment for Over 50 Years

THE A. H. NILSON MACHINE COMPANY

1508-J RAILROAD AVENUE, BRIDGEPORT 5, CONNECTICUT

OTHER NILSON PRODUCTS:

- Automatic chain-making machines
- Automatic staple forming machines
- Wire and Stock reels
- Foot Presses
- Wire straightening equipment
- Slide Feeds for Presses

Surface Combustion President First Toledoan To Receive Key To City

Frank H. Adams, President of **Surface Combustion Corp.**, was recently presented with a glass "key to the city" by Mayor Lloyd E. Roulet, in a ceremony recognizing the 25th anniversary of Surface Combustion's present Toledo plant and Mr. Adams' 40 years of service with the company.

★ ★ ★

In presenting Mr. Adams with the key to the city, the first ever given to a Toledoan, **Mayor Roulet** recounted the Surface Combustion president's activities in Toledo and declared that they were all aimed at betterment of the city.

★ ★ ★

Clyde E. Rosene, President of the Doherty Men's Fraternity, also presented Mr. Adams with a 40-year service pin, in recognition of his long-term association with the company. The presentation, which was a complete surprise to Mr. Adams, was arranged by a committee of Surface Combustion employees. The entire 800 persons in the Toledo plant of Surface Combustion Corp. participated in the ceremony.

NRM

"TAKE-UP" UNITS FOR *Close Tolerance* PLASTIC WIRE COVERINGS

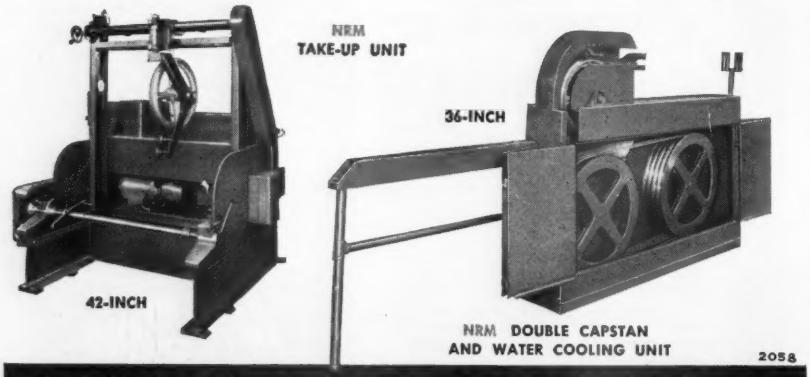
To cover wire to close tolerances at high speed, you need specifically designed, precision-made equipment. NRM's extruders and auxiliary wire covering equipment are so designed and so made.

Take NRM's 42" Take-up Unit, it's compact and ruggedly built, yet capable of fine adjustments. Its take-up is driven by an adjustable torque motor which maintains constant tension on the wire. Its traverse is adjustable for movements of ¼", 5/32", 3/32", and 1/16" for each revolution of the take-up reel. It handles wire and cable ranging in size from ¼" to 1½" in covered diameter. It has wire speeds from 40-500 feet per minute. It takes reels up to 42" in diameter and 16" to 36" wide.

NRM's 36" Double Capstan and Water-Cooling Unit is designed for use with the 42" Take-up Unit. It has the same wire capacity and speeds. It also is closely adjustable through its variable speed drive. It pulls the wire through the cross-head at an even rate, giving truly uniform coverings.

Although designed for use with each other, these units, like all NRM wire covering equipment, are sold and can be used on an individual basis. Other quality NRM wire covering equipment includes extruders, crossheads, supply reel stands, wire straighteners, and complete "package" units.

Write for details, today!



NATIONAL RUBBER MACHINERY CO.

General Offices & Engineering Laboratories: Akron 8, Ohio
East: 384 Getty Avenue, Clifton, N. J.
West: S. M. Kipp, Box 441, Pasadena 18, Cal.
Export: Omni Products Corp., 460 Fourth Ave., New York 16, N. Y.

Creative Engineering

To Manage Detroit Office For Glass Fibers

Thomas R. Simkins has been named branch manager at Detroit and will direct transportation sales for **Glass Fibers Inc.**, Toledo, Ohio, according to an announcement made by **R. W. Capaul**, vice president and general sales manager of the company.

★ ★ ★

Mr. Simkins was formerly vice president and a director of the Glasfloss Corporation, glass fiber manufacturers of Hicksville, New York. He holds several patents on the use of glass fibers in the air filtering and automotive battery fields.

★ ★ ★

After graduating from Ohio State University, Mr. Simkins began his career with Owens-Corning Fiberglas Corporation in 1936 and was manager of the Research Laboratory at Newark, Ohio from 1939 to 1943. For 1½ years during World War II, he was on special assignment to the United States Navy, as consultant on shipboard power and lighting equipment.

Firth Sterling Appointments

E. William Kalb has been appointed Steel Sales Manager of Firth Sterling, Inc. He was formerly Assistant Manager of the Steel Sales Division. His fourteen years of experience in the steel industry has covered tool steel, stainless, and alloy steel specialties.

★ ★ ★

After graduating with a B. S. degree in chemistry from the University of Illinois, he attended Northwestern University, where he maiored in sales administration.

★ ★ ★

At the same time, the company also announced the appointment of **D. G. Clark** as Assistant General Sales Manager. Mr. Clark started his association with Firth Sterling in 1903 at the Chicago Branch. In 1919 he served as Eastern Sales Manager, and in 1927, came to the main plant at McKeesport, Pa., as Director of Sales of the Steel Division.

★ ★ ★

From 1935 until 1946 he served as Vice President in Charge of Sales. In 1946 he retired from active management, but remained as con-

sultant on Sales until 1950, when he was appointed Steel Sales Manager. His new responsibilities include both the Steel and Carbide Divisions.

★ ★ ★

John Tod Retires from Sheet and Tube

John Tod has retired as a director and member of the **Youngstown Sheet & Tube Company's** executive committee after 29 years.

★ ★ ★

To fill the two vacancies directors elected **Fred Tod, Jr.** as a director and **J. L. Matueh,** president of the company, to the company's executive committee.

★ ★ ★

Mr. Tod was first vice president and director of Brier Hill Steel Company when it was organized in 1912. It was purchased by the Youngstown Sheet & Tube Company in 1923. He became a director of Sheet & Tube and was elected to the company's executive committee in 1932.

★ ★ ★

Sheet & Tube directors elected three other persons to positions with the company. They are: Robert F. Doolittle of Philadelphia, as assistant general council and assistant secretary of the company; Floyd D. Hunter, assistant secretary for several years, to assistant general council; K. Calvin Sommer, assistant treasurer to succeed Joseph B. Sugden who retired last month.

★ ★ ★

Sales Engineer Added To NRM Rubber Machinery Staff

E. E. "Dutch" Moore, associated with the **National Rubber Machinery Company** since 1928, has recently been appointed a member of the Sales Department of the Rubber Machinery Division. He was formerly associated with the Tire and Tube Mold Division, with duties covering both engineering and sales.

A. I. & S. I. Executive Changes

Upon the retirement of **Walter S. Tower,** President of the **American Iron and Steel Institute,** on May 23, 1952, **Max D. Howell** was elected to a newly created office, that of "Executive Director" of the Institute. Mr. Tower had been president since 1940.

VISIT THE

2nd European Machine Tool Exhibition
Hanover, Germany — September 14-23

and see the machines manufactured by

HERBORN	
MALMEDIE	Hall 8, Stand 8203 Hall 3, Stand 3224
MEYER, ROTH & PASTOR	Hall 8, Stand 8106
WAFIOS	

As advertised in Wire & Wire Products

★ ★ ★ ★ ★ ★

JLE

SERVING THE WIRE INDUSTRY THROUGHOUT THE WORLD

- Caterpillar Pull-outs
- Standard Sets of Spark-Testing Equipment
- Take-ups and Re-spoolers
- Reelers
- Coilers
- Spoolers
- Collapsible Coiling Reels
- Wire Sparkers and Accessories
- Hand Locators
- Electrode Units and Stands
- Measuring Machines, Counters and Accessories
- Wire Guide Units
- Pay-off Reels Stands
- Electronic Devices
- Shaftless Take-ups and Payoffs
- Wire Pre-Heater
- Disk Brakes and Controls, Drag Units and Slip Clutches
- Wire Marking Machines, Type Strips, Inks
- Labelling Machines
- Pneumatic Equipment and Controls
- Special Machinery for the Wire Industry
- Hydraulic Equipment and Controls
- Hi-Pot Test Sets
- Cable Handling Equipment for Warehouse Use

SEE PAGE 768 for NEWS of the JLE WIRE SPARKERS.

JLE JAMES L. ENTWISTLE CO. JLE

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GENERAL ENGINEERING CO., LTD.
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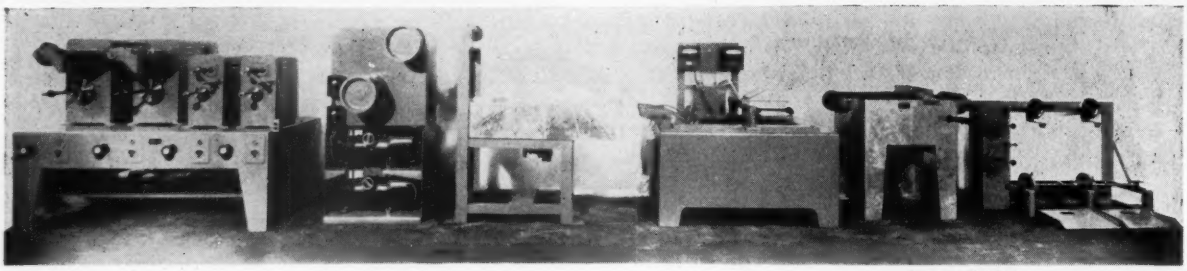


Outfit #1060

FOUR LINE TINNING OUTFIT, ESPECIALLY USEFUL TO MANUFACTURERS WITH A VARIETY OF WIRE SIZES TO TIN, BUT WITH SMALL POUNDAGE.

Component units include:

A let-off for 2 small spools for fine wires and 2 large spools for heavy wires.

An acid tank.

A tinning tank, electric heated, with automatic temperature controls, immersion arms and wipers.

A water bath.

A capstan unit and a take-up, arranged for 2 large spools for large size wires and 2 small spools for small wires, each spool spindle driven by a torque motor.

EST. 1855 AIMCO INC. 1915

"American" AIM INSULATING MACHINERY COMPANY

REG. U.S. PAT. OFF.

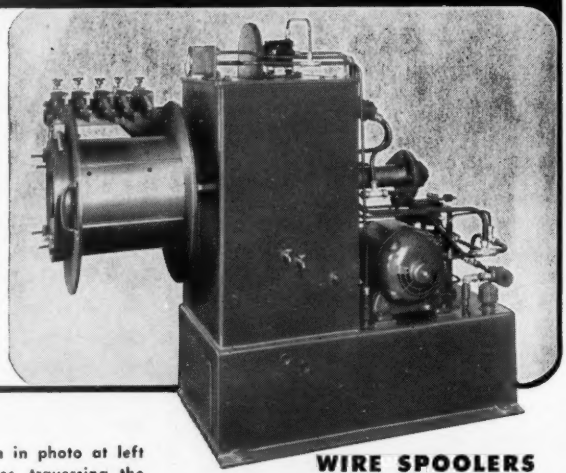
FAIRHILL AND HUNTINGDON STREETS

PHILADELPHIA 33 PENNSYLVANIA U.S.A.

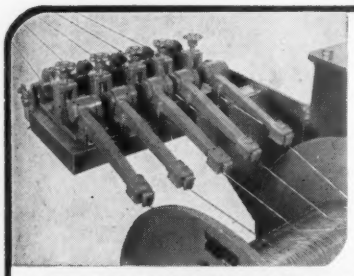
COIL 5 STRANDS IN 1 OPERATION

SECO TRAVERSE REEL SPEEDS UP PRODUCTION

This new SECO Traverse Reel winds five separate coils of flat wire or narrow strip *at the same time.* Coils are oscillated-wound, permitting much longer lengths than conventional ribbon-wound coils. Smooth, powerful hydraulic operation gives coiling speeds as high as desired, accurately controlled from zero to top running speed.



WIRE SPOOLERS
Single and Multiple type. Speeds up to 4,000 feet per minute.



Method of coiling is shown in photo at left The complete block oscillates, traversing the wire into five 3" wide coils. Traverse and tension control are extremely accurate. 1/8" to 1/2" wide flat wire can be wound. Block has 16" inside diameter and 24" outside diameter.

Call or Write for Information and Complete Data — No Obligation

STEEL EQUIPMENT CO.

P. O. Box 737, Warrensville Station, Cleveland 22, Ohio

SECO

Sjogren Tool and Machine Company Observes Its Silver Anniversary Year

For the entire year, 1952, the **Sjogren Tool and Machine Co., Inc.,** of Auburn, Mass. is celebrating their Silver Anniversary. The name, O. Sjogren and Sons Tool and Machine Co., was adopted on a day in late August, 1927, and a tiny factory located in the rear of the Sjogren home at number 14 Sword Street in Auburn, Mass., was erected in

which Oscar Sjogren and his five sons began the manufacture of the many wire mill tools and machines which have since become the accepted standards of the industry.

★ ★ ★

Each son was trained with a care and finality of craftsmanship typical of the old-world training to produce a product that would do its required job effectively and well. Oscar Sjogren, born at Bofors in Sweden, the center of the great Bofors Iron Works, was trained before 1900 in the exacting craft-requirements of that country. He came to America at the turn of the century first locating in Boston. Later, he moved inland where he selected a six acre site on which to build his home because of the proximity of Auburn to the steel and wire drawing mills in Worcester, Mass.

★ ★ ★

As the demand for Sjogren Wire Mill Tools and other products grew it became obvious that the original tiny shop could no longer house a larger number of employees or produce the special types of tools on which their fine craftsmen-machinists often work in conjunction with the inventor or the machines which are designed or manufactured to specifications under the Sjogren name. At the out-break of World War II the original building plus the several additions comprised a modern, cement-block structure with more than 3,500 square feet of floor space. In 1950 this area was nearly doubled. Much of the firm's work—as might be expected—was on material for the defense effort during the entire war period, so it was not until hostilities ceased that the company was able to resume its peacetime activity and plan for the development of a line of products which will increase the ease of handling and speed of production in many wire mill processes.

★ ★ ★

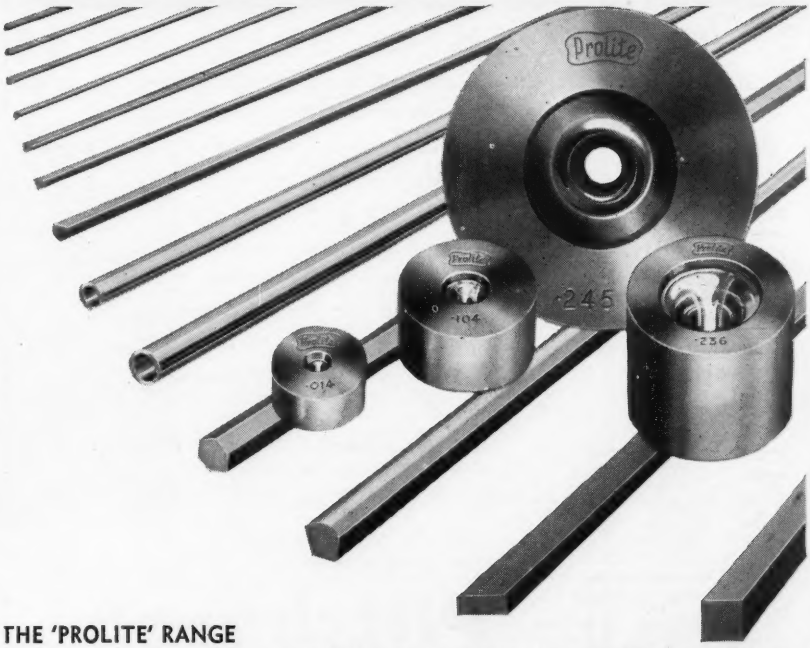
After half a century at his trade and nearly a quarter century as the proprietor of his own business, Mr. Sjogren turned over the more active duties to his sons and in 1950 incorporated the business as the Sjogren Tool and Machine Co., Inc., its present title. He is its president and treasurer, Richard its vice-president and assistant treasurer, Walter its secretary and clerk.

★ ★ ★

The continual stressing of a quality of workmanship, the suitable mating of design and durability in

Leading British Manufacturers use Prolite DRAWING DIES

CEMENTED TUNGSTEN CARBIDE



THE 'PROLITE' RANGE OF MUREX METALLURGICAL PRODUCTS INCLUDES:

Tungsten Carbide Tips and Tipped Tools, Bar, Tube and Wire Drawing, Extruding and Metal Forming Dies and Die Pellets, Cold Heading Dies, Nozzles, Guides, Bushes and other Wear Resisting Parts.

MUREX LTD. (Powder Metallurgy Division) RAINHAM • ESSEX • ENGLAND

London Sales Office: Central House, Upper Woburn Place, London, W. C. I.

use has made the S & S mark on wire mill tools or machinery a recognized standard throughout the industry.

★ ★ ★

Moves to Larger Plant and Expands Operations

Wire Corporation, Worcester, Massachusetts, is manufacturing high grade stainless steel wires exclusively, in complete range of sizes from .0005″ to .200″ in both nickel-Chrome and straight Chromium steel. Their equipment is of a special design developed for the production of Stainless Steel Wire to insure conformity to customer's specifications with particular attention to the magnetic permiability characteristics.

★ ★ ★

This plant also produces through it's subsidiary company (MacDonald Metals Division), Stainless Steel Pot Cleaning Sponges which are marketed under the trade name "SPONGIT". This product is somewhat new and a tremendous improvement over older types of metal pot cleaners. "SPONGITS" are distributed by jobbers located throughout the world. "SPONGITS" are also used in vast quantities by the Armed Services.

★ ★ ★

The Corporation was established in 1938 as The Spencer Wire Company in Wire Village, Spencer, Massachusetts. Wire Village was the birthplace of the first commercially drawn steel wire. William H. MacDonald took over the plant and facilities which had remained idle for a number of years, and in short time was drawing wire there, much of its product being used in World War II production. Soon, more space and more modern equipment were found necessary, and the plant was moved to West Brookfield, Massachusetts and the manufacture of high and low carbon wire carried on a larger scale.

★ ★ ★

Wire Corporation, established in 1941 was moved to Worcester to specialize in the production of Stainless Steel Wire. Enlargement of the plant and facilities were found necessary to meet the demands for their product and in 1951 the new plant on Sutton Lane, Worcester was opened. This new plant comprises about 20 acres of land with 200,000 square feet of manufacturing space. At this plant, a complete research and development laboratory has been established for further development of Stainless Steel magnetic and non-magnetic wires for all industries.

★ ★ ★

Officers are: **William H. MacDonald**, President, and Treasurer; **Charles E. Reardon**, Vice-President and General Manager; and **John T. Young**, Superintendent.

★ ★ ★

Fidelity Appoints West Coast Representative

"**An** agreement has just been made between our company and **H. M. Royal, Inc.** of 4814 Loma Vista Avenue, Los Angeles, California, for the exclusive representation of **Fidelity Equipment** for the Wire and Rubber Industries.

★ ★ ★

H. M. Royal, Inc. will handle the sale of Fidelity-Sinfra Wire Covering Machines with take-up reel stands in the State of California.

★ ★ ★

This modern equipment is used in the manufacture of weatherproof wire and cable, non-metallic sheathed cable and building wire with a knit jacket."

precision
wire straightening
and cutting
for all industry...
AIRCRAFT
AUTOMOTIVE
RADIO
TELEVISION
TOYS
COMMUNICATION
TEXTILE
Whenever your wire straightening or cutting problem calls for close tolerances and uniform quality, it will pay you to take advantage of Pittsburgh Cut Wire's long experience to all industry. Expert workmanship and exact machining to your specifications for more than a decade, combine to give you the experience that will serve you best. Call on us for your wire straightening and cutting needs.
Straightening & Cutting in diameter ranges from 1/16" to .005" in all types of wire.
Pittsburgh
cut wire company
1120 Galveston Ave. Pittsburgh 12, Pa

A Review of Recent Wire Patents

No. 2,598,760, RECORDING WIRE, patented June 3, 1952 by Harold W. Cobb, Baltimore, Md., assignor to Armco Steel Corporation, a corporation of Ohio.

A cold-worked and cold-treated stainless steel sound recording wire of about 0.004 inch maximum thickness is provided, characterized by its high coercive qualities, high residual induction and freedom from ground noise, comprising metastable austenitic chromium-nickel stainless steel containing 16% to 19% chromium, 6% to 12% nickel, up to 0.30% carbon and remainder principally iron having a structure comprised of uniform partially transformed grains achieved by cold-treatment at a temperature between about 0° C. and 200° C.

★ ★ ★

No. 2,599,547, MACHINE FOR PACKAGING WIRE FORMS, patented June 10, 1952 by William F. Feyrer, Englewood, N. J., assignor to Nathan L. Solomon, Englewood, N. J.

Wire bobby pins and the like are adapted to be packaged, on a card, by this machine. There are twenty-one claims.

★ ★ ★

No. 2,599,788, SUPPORT FOR FENCING, patented June 10, 1952 by Derrick Seebohm Hitchin, England.

A readily shiftable support for fencing is disclosed, comprising a base of metal rod material arranged to lie in one plane so as to rest flat upon the ground, and two upstanding limbs of metal rod material having their lower ends spaced apart and attached to portions of the base, the limbs converging as they extend upwardly from the base and being joined together at their upper ends.

★ ★ ★

No. 2,599,875, ARMATURE WINDING MACHINE, patented June 10, 1952, by Cyril Peter Starfield, Dukinfield, England, assignor to The Midland Dynamo Company Limited, Leicester, England.

Small armatures, such as are used in vacuum cleaning motors, may be wound with this machine.

★ ★ ★

No. 2,600,666, FENCE, patented June 17, 1952, by William M. Martensen, Chicago, Ill.

This fence comprises a number of rod or heavy wire uprights of inverted J-shape with the curved portion of one connected with the upper end of the straight portion of the next adjacent upright and all connected by a lower horizontal member.

★ ★ ★

No. 2,600,755, COVER RACK, patented June 17, 1952, by Elmer L. Greensfelder, Provincetown, Mass.

The rack may be used for storing utensil covers on edge, and is constructed of bent wires.

★ ★ ★

No. 2,600,841, WIRE CLAMP AND CUTTER FOR SPOOLING MACHINES, patented June 17, 1952, by Carl O. Bruestle, Metuchen, N. J., assignors to Syncro Machine Company, Perth Amboy, N. J., a corporation of New Jersey.

This device is for clamping and cutting a wire extending from a full spool to an empty one in a continuous spooling machine in which wire fed thereto is alternately wound on two adjacent spools.

★ ★ ★

No. 2,601,385, SCREW STUD, patented June 24, 1952, by Harry C. Graham, Pittsburgh, Pa., assignor to Pittsburgh Screw and Bolt Corporation, Pittsburgh, Pa., a corporation of Pennsylvania.

More specifically, this is a railway spike of the driven type with a shank having broad screw threads at its lower portion so that it will rotate as it is being driven.

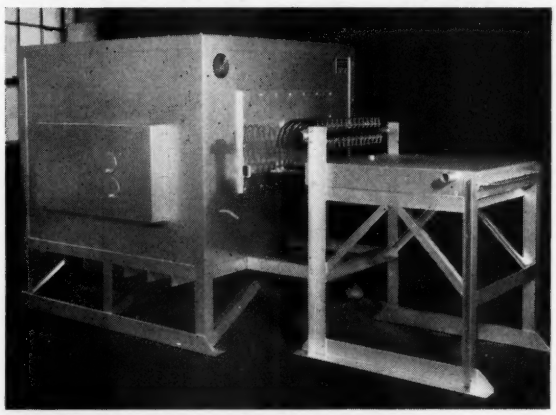
★ ★ ★

No. 2,601,571, GLASS STAND, patented June 24, 1952, by William C. Sverkerson, Robbinsdale, Minn., assignor of one-half to Roy Petefish, Minneapolis, Minn.

This stand is adapted for detachable securing it to a table or the like and is constructed of sections of bent wire.

Complete Description and Drawings of Patents May Be Had for 50 cents, outside the United States and Canada $1.00. Address, Wire & Wire Products, 453 Main Street, Stamford, Connecticut.

298,636 MILES OF WIRE ANNEALED IN ONE YEAR IN HARPER STRAND ANNEALER



operating 24 hours a day for two years,

with never a trace of trouble.

This remarkably efficient 30-tube electric atmosphere furnace has been on the job continuously day and night at one plant annealing 304 stainless weaving wire in sizes of .020" to .0014". Temperatures of 2000° to 2200° F were used and speeds of 100 f.p.m maintained. Softer wires run at somewhat lower speeds.

This HARPER furnace has practically eliminated rejections.

The annealing of stainless steel wire is a delicate job, requiring maintenance of temperatures within narrow limits. This HARPER unit has been of inestimable value in producing wire at exceptionally uniform quality. What HARPER has done for one mill can be duplicated for you on stainless or other metals.

You are invited to consult HARPER engineers on your wire problems
Address inquiries to

HARPER ELECTRIC FURNACE CORP.

Department 12, 39 River Street, Buffalo 2, N. Y.
Designers and Builders of High Temperature Electric Furnaces

WAFIOS

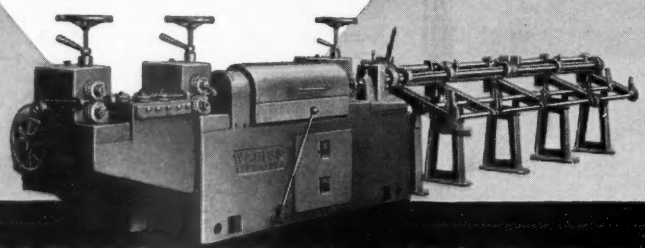
WIRE-WORKING MACHINERY

Wire Netting Machines for Chain Link, Hexagonal Mesh, Poultry Netting, Field Fence. Crimping, Barb Wire and Staple Machines. Spring Coilers. Spring End Grinding Automatics. Loop Benders. Upholstery Spring and Wire Mattress Machines. Wire Nail Machinery. Chain Formers. Chain Welders. Straightening and Cutting Machines. Multi-Slide Wire and Strip Forming Machines. Special Machinery for the making of Paper Clips, Lock Washers, Bale Ties, Key Rings, Tin Openers, Wire Bag Ties, etc. Automatics for Flexible Metallic Tubing.

Sole Agents for Australia and New Zealand: Bliss & Reels Co. Pty. Ltd., 64-66 Little Bourke Street, Melbourne C. 1, Australia.

WAFIOS

SINCE 1893



MASCHINENFABRIK WAFIOS

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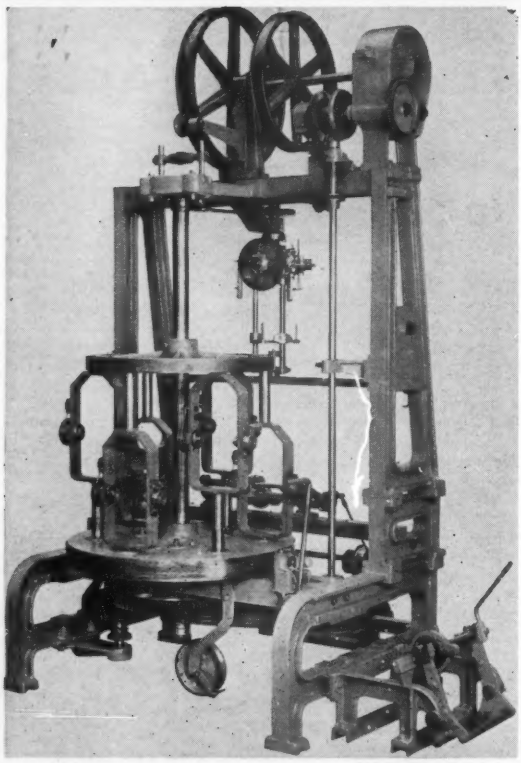


Pourtier Assembling Machines

OF INTEREST TO CABLE MANUFACTURERS:

OUR VERTICAL ASSEMBLING MACHINE—WITH DE-TORSION

IT IS:

- noiseless because driven by V-belts;
- highly productive because handles large drums;
- safe because of friction and automatic stop motion;
- easy to operate because equipped with a regulated traverse; and
- efficient because 3 papers or 1 cotton can be applied after the assembling operation.

Has Haul-off Capstan 24" Diam.
Built with 4, 6, 8, 12 and Bobbins.

Inquire about prices and delivery.

POURTIER MACHINES

153 Rue Gallieni

ROMANVILLE • SEINE, FRANCE

New Folder On Dry Descaling Of Rods

Fisher Associates, 122 E. 42nd St., New York 17, New York, having been granted the exclusive representation in the United States for the "Gorcy" wire rod descaling equipment manufactured by Victor Liné, have available a new folder that illustrates and describes the appliance.

★ ★ ★

These descalers have been in successful use in Europe for some time and their use is said to eliminate acid pickling and to make possible the direct drawing of raw rod without intermediate handling.

★ ★ ★

The descaler is placed directly in front of a drawing machine, which supplies the small power necessary to its functioning.

★ ★ ★

Copies of the folder will be sent upon request to interested parties.

Low-Cost Removal Of Annealing Scale

The Magnus Chemical Company of Garwood, N. J., carried out tests in its plant scale laboratory which have resulted in a radical reduction in the cost of descaling the rings for 20 mm shells for a large producer of these parts.

★ ★ ★

Formerly they had sent rings out to a job shop for descaling and brightening, at a cost of about .4¢ per ring. The Magnus method now enables them to do the operation in their own shop at a cost of less than .01¢ per ring.

★ ★ ★

Tests indicated that when Magnus D-Scale-RS was used in a tumbling barrel, results would be perfectly satisfactory without the use of stones or other abrasives. Magnus D-Scale-RS is an inhibited acid cleaner, safe for use on copper alloys without danger of tarnishing or corroding.

★ ★ ★

Results obtained in the Magnus laboratory gave completely satisfactory descaling and a bright copper color in about 15 minutes.

★ ★ ★

The operation is now carried out on a routine basis in the customer's plant, descaling rings in batches of 150 lbs.

★ ★ ★

Similar or related descaling and brightening of parts and wire products made of copper alloys or on other non-ferrous and ferrous alloys can be carried on with Magnus D-Scale-RS or one of the other Magnus Inhibited Acid Cleaners.

Heat Treating Information

The timely HEAT TREAT REVIEW, published periodically for industry by **Surface Combustion Corporation,** is now in its fifth issue. The current issue, Volume 3, Number 1, includes excellent articles on 'How to Cut Heat Treat Costs'—in a mass production automotive plant —and 'What Builds a Quality Heat Treat Shop'—for job-lot commercial heat treating.

★ ★ ★

Applications of the latest in heat treat equipment and processes are reviewed in the pages of this well-illustrated bulletin.

★ ★ ★

If you are not receiving your copies, write direct to The Editor, HEAT TREAT REVIEW, Surface Combustion Corporation, Toledo, Ohio.

CREPED

Thermoplastic Cable Sheathing Kraft

Now available for belting in

MULTICONDUCTOR CABLES

For softness and flexibility.
Will not wick water
into an assembly.

Merrimac Paper Co., Inc.

Mills — Lawrence, Mass.
295 Madison Ave., New York City

Tailor-made Specification Papers.

Electric Furnace Research And Experimental Facilities Expanded

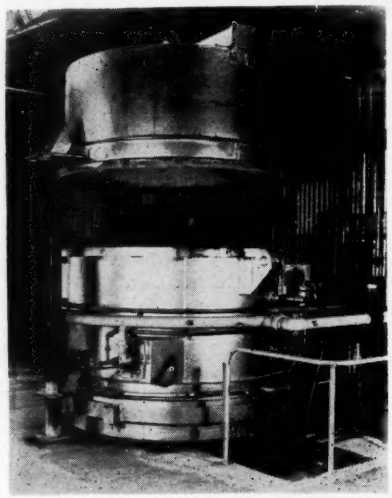
The Electric Furnace Company of Salem, Ohio, manufacturers of electric and fuel fired industrial furnaces, have recently completed an extensive expansion of its research and experimental facilities. These are now available to producers of wire, wire products and other metal working industries.

★ ★ ★

The most recent additions include a large combination gas and electrically heated production strip line that permits great flexibility in heating, soaking and cooling rates for annealing, normalizing, coating and other heat processing for standard coils of both ferrous and non-ferrous strip, and a gas-fired, special atmosphere, forced circulation bell-type unit capable of handling wire, rod or strip in standard coils, as well as many other products and parts in various shapes and forms.

★ ★ ★

The company has operated a chemical laboratory since its inception in 1923 for the study of materials best suited to furnace construction and for the determination of results that could be obtained in heat treated products in furnaces. This laboratory is a part of the Research Department and is operated under the supervision of Dudley Ashead, Chemical Engineer. The Research Department has proven of great value to the company in the



E. F.'s New Furnace * * * *

design and construction of furnaces and to customers in determining proper temperatures, cycles and atmospheres required for efficient furnace operation.

★ ★ ★

A considerable amount of heat treating is also done on a production basis as a service to customers who may need these facilities while awaiting the completion of furnace equipment that is on order. A charge is made for such production service.

★ ★ ★

The Electric Furnace Company has made its research facilities available to all metal processors and fabricators and is glad to extend them to those who have problems either of a routine nature or on projects where new processes must be developed to handle heat treatment questions for which there may be no standard procedure.

★ ★ ★

The company feels that if it does not have the answer to a given problem, through its research facilities it can be supplied in a relatively short time.

Pickling Equipment Catalog

A new catalog entitled "Clagor" has been issued by **Clark E. Gor-**

Ready with quality soaps for every wire drawing need. Whatever your specialized need, you can always find the right soap in Swift's complete line. And you'll find that Swift's Soaps for wire drawing uses have efficient lubrication, minimum dusting and dependable uniform quality.

Willing to apply our knowledge of soap to your lubrication problems.

And Able to give fast service from Swift distribution points coast to coast! You can order any of these fine soaps and expect immediate delivery:

Powdered White Ribbon Guaranteed Powder
Snap Heavy Duty Wire Drawing Powder No. 282
No. 559 Powdered Soap

Plus other special formulations to meet your specifications. See your local telephone directory for address of your nearest Swift office.

SWIFT & COMPANY
Soap Department, Chicago 9, Illinois

Call SWIFT first for soaps

don, Inc., 18050 James Couzens Hwy., Detroit 35, Mich.

★ ★ ★

It describes and pictures a full line of pickling and heat treating equipment made of "Clagor", an acid resisting alloy. The line includes hooks, baskets, bolts, pipes, chain, crates, steam jets, mechanical agitators, valves, nails, tanks and other items, including complete pickling systems and accessories.

★ ★ ★

The company will be glad to send a copy to those persons who may want it.

Corrosion Protection Of Conduit

A large public utility company solved a tough maintenance problem with metallizing. Underground conduits maintained by this company are practicallly immersed in water for a large part of each year. Average paint job, used previously, would last from six months to a year before it flaked off. In the meantime, rusting had taken place under the coat of paint during this period.

★ ★ ★

The first of these conduits was metallized with pure zinc over two years ago, the zinc being covered with a vinyl aftercoat in accordance with specifications of an anti-corrosive system. Careful periodic inspections have failed to reveal any apparent change in the metallized coating during this two year period. Even when the vinyl aftercoat fails, which may conceivably occur after five years or so, judging by its present condition, the zinc coating will still be there to provide complete electrolytic protection against corrosion. After this extended time, it will only be necessary to replace the vinyl aftercoat. Even this operation will be inexpensive compared to the replacement of previous paint jobs, since there will be no rust or paint flake requiring removal by the usual wire brushing or sandblasting, comparatively expensive procedures.

★ ★ ★

Several other money-saving metallizing applications are also discussed in the current issue of METCO NEWS Vol. 6 #2. Send for your copy by writing to **Metallizing Engineering Co., Inc.,** 38-14 30th St., Long Island City 1, N. Y.

Kit Of Chrome Carbide Samples Available For Test Applications

A sample test kit containing a variety of shapes and sizes of the new Grade 608 cemented chrome carbide is now available from **Carboloy Department of General Electric Company,** 11177 East 8 Mile Road, Detroit 32, Michigan. The kit is designed to enable product designers, development engineers, process engineers and metallurgists to make a wide variety of metallurgical, physical and chemical tests to check the corrosion, abrasion and erosion resistance of the new carbide in specific applications.

Grade 608 Chromium Carbide, a strong and stable non-magnetic metal that contains 83% chromium carbide, 2% tungsten carbide and 15% nickel, has about the same density as SAE steel and approximately the same thermal coefficient of expansion as steel. It has shown extremely high resistance to acids, salt spray, steam erosion, and high temperature oxidation—combined with good abrasion resistance. Series 600 Chrome carbides are as machinable and hard as tungsten carbide. Fabrication and finishing techniques for these metals are identical to those for tungsten carbide.

★ ★ ★

EW

HIGH PRODUCTION METAL LOOMS

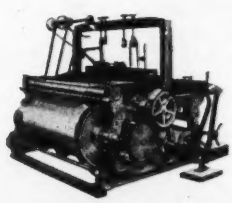
"SAMP"

Type BM for mosquito & fly nets, paste factories, armour plate glass, corn sieves, etc.

Type XL for flour mills, chemical and industrial works, etc.

Type CP for "Rabitz" cloth, plastering work, armour plate glass, etc.

Type CM for extra strong metal cloth for sieves, grain, rice, armour plate glass.

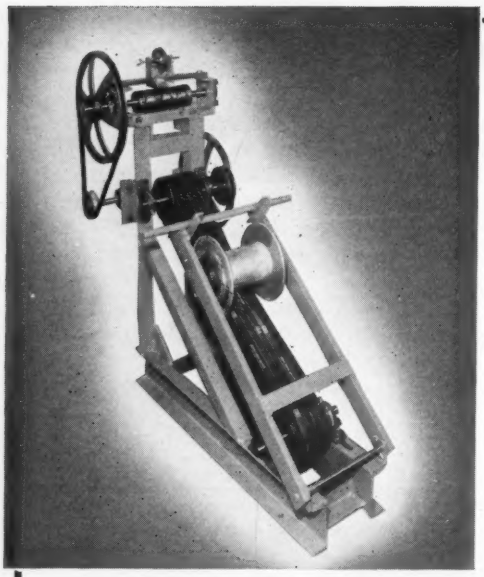


Jarach-Guetta, Industrial Overseas Co., Inc.

120, Wall Street, New York 5, N.Y.

General Agents of EMILIO WARTENWEILER,

Via Pergolesi 18, MILAN (Italy)



NEW WIRE TAKE-UP

Engineered and built by wire men for wire mills. The Take-Up shown is designed for use primarily with wire drawing and rolling equipment. New in principle; better in operation. Traverse is syncronized so that a good wire lay is obtained. Rugged construction, compact, ball bearings throughout and LOW IN COST. Designed by specialists in loading and unloading reels. All sizes.

One customer who has used this new Take-Up for over 4 months reports that he gets better winding and spooling with this FEDERAL TAKE-UP than from any other machine he has used.

Write today for details on these fine new FEDERAL TAKE-UPS.

FEDERAL EQUIPMENT

- CAPSTANS
- PAY-OFFS
- TAKE-UPS— SINGLE & DOUBLE
- ELECTRODES
- CORD SET TESTERS
- SPECIAL TESTING EQUIPMENT
- LACQUER TOWERS
- MEASURING MACHINES

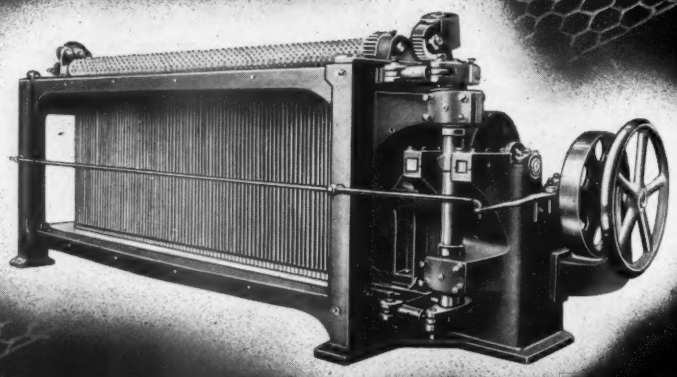
Federal Manufacturing Co.

SPECIAL WIRE MACHINERY

236-240 Hall Avenue, Wallingford, Conn.

We build again: Hexagon Wire Netting Machines

Mesh widths 1/8" - 4"
Working widths 3' - 12'
for wire BWG 22 - 13 1/2



Model TUDN

SINCE MALMEDIE 1873

MASCHINENFABRIK GMBH DÜSSELDORF / GERMANY

Typical applications indicated for Grade 608 carbides include: Shear blades for molten glass; core pins for baking ceramic parts; fishing rod guides; centrifuge nozzles in separating equipment; bearings where corrosives are present; textile guides; nozzles and valves for processing soaps, fats, oils, foods, chemicals, petroleum products, pharmaceuticals and fruit juices; valve and core pins in die casting processes; and so forth. Price of the complete sample kit, including a technical bulletin, is $10.75.

Phelps Dodge Makes Delivery Of New Coaxial Cable

Delivery of a Styroflex Coaxial Cable for television use has been announced by **Phelps Dodge Copper Products Corporation.**

★ ★ ★

The cable was installed at the Mt. Sutro transmitter of Station KPIX-TV in San Francisco where new aerial installations went into operation recently.

★ ★ ★

Employing a continuous pipe of aluminum as the outer conductor and sheath, this cable is expected to be considerably more effective than cable previously available in the United States for microwave use.

★ ★ ★

Phelps Dodge officials state that the cable employs a continuous insulation in the form of a helix, which maintains the spacing of the inner and outer conductors. The helix is built up of hundreds of extremely thin Styroflex tapes wound on with great precision making the cable completely without reflections which cause ghost images in television and distortion in communications.

New Oil And Gas Burner Catalog

Hauck Manufacturing Company, 124 Tenth St., Brooklyn 15, N. Y., has published a new catalog, No. 52, giving a condensed text and pictorial review of their equipment for production, construction and maintenance applications in industrial plants. Standby oil firing equipment for plants subject to seasoned shortages of natural gas are also included in a fly-leaf. Either or both of these publications will be mailed in response to requests.

Philips To Exhibit X-Ray Diffraction Equipment

The Research & Control Instruments Division, **North American Philips Company, Inc.,** 750 South Fulton Avenue, Mount Vernon, New York, will occupy booths 529 and 531 at the meeting of the Instrument Society of America in the Cleveland Auditorium on September 8-12, and booth 1861 at the Metals Show in the Philadelphia Auditorium, October 20-24.

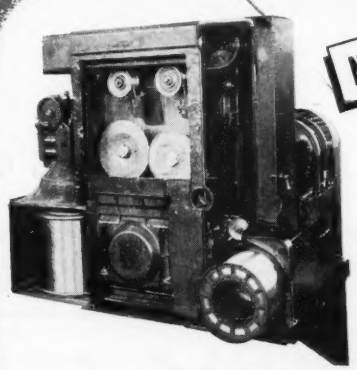
★ ★ ★

Philips will exhibit X-ray diffraction equipment including the high angle goniometer, powder cameras and accessories, the fluorescence analysis unit and 90° spectrometer. Also on display will be the new Philips Electron Microscope.

★ ★ ★

Patronizing Our Advertisers

These are the progressive concerns who stand behind their products and have reputations worth sustaining and you can depend upon them.



NOPCO'S **DURPON*** Drawing Compounds give **2-TIMES MORE SERVICE** than conventional compounds

Nopco's DURPON series of drawing compounds has been specially developed—after many years' research in the wire drawing field—for wet drawing nonferrous wire, rods, and tubes.

Incorporated into each Durpon product is a stabilizing additive which prevents contamination of the effective drawing ingredients by dirt, metallic particles, and carried-over acid. The additive preserves stability and lengthens the life of the drawing emulsion during recirculation. It also maintains a normal balance between soap and lubricant.

Nopco® Durpon compounds not only provide optimum lubrication, but retain their initial degree of performance for *twice as long* as conventional compounds. *Thus greatly increased die-life is assured.*

If you draw nonferrous materials—such as copper and copper coated rods and tubes—it will profit you to put one or more of these outstanding Durpon compounds to work for you *now.* You'll obtain better drawing results, and *reduce drawing costs considerably.*

We have immediately available:

DURPON
for intermediate gauge wire

DURPON L
for heavy wire, rods, and tubes

DURPON FW
for fine wire

Fill out and mail the coupon today. A technical bulletin and trial-size order will be sent promptly.

®Reg. U.S. Pat. Off.
*Trademark

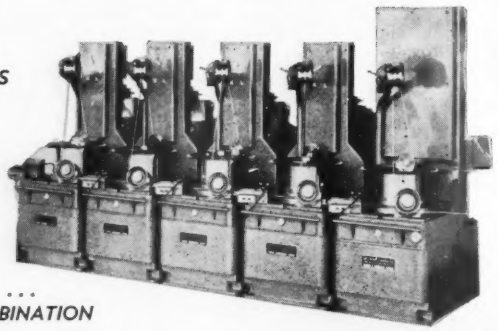
NOPCO — EVOLVED THRU RESEARCH
NOPCO CHEMICAL COMPANY
Harrison, N. J.
BRANCHES: Boston • Chicago
Cedartown, Ga. • Richmond, Calif.

NOPCO CHEMICAL COMPANY, Harrison, New Jersey
Gentlemen: Please send me a copy of your Bulletin giving information about Nopco DURPON Drawing Compounds.
Name.....Title.....
Company.....
Address.....
City.....Zone.....State.....

AETNA-STANDARD WIRE DRAWING UNIT

- DESIGNED FOR COMPLETE VERSATILITY
- BUILT FOR SAFE, EFFICIENT PRODUCTION
- SINGLE OR MULTI-DRAFT OPERATION
- INTERCHANGEABLE UNITS AND PARTS
- AUTO-RHEOSTATIC SYNCHRONIZATION
- WATER COOLED BLOCKS AND DIES

FERROUS OR NON-FERROUS



WET OR DRY LUBRICANTS

SINGLE UNIT ... OR ANY COMBINATION

THE AETNA-STANDARD ENGINEERING CO.

PITTSBURGH, PA.

ASSOCIATED COMPANIES: HEAD, WRIGHTSON & COMPANY, LTD., THORNABY-ON-TEES, ENGLAND
AETNA-STANDARD ENGINEERING COMPANY, LTD. . . . . TORONTO, ONTARIO, CANADA

New Wire Plant Opened In Jacksonville

The Ivy H. Smith Company recently opened a new plant at 3050 Melson Avenue, Jacksonville, Florida. This plant produces steel wire and welded wire fabric used in reinforced concrete construction and in the manufacture of concrete pipe.

★ ★ ★

Ivy H. Smith, president, is also the head of the Sherman Concrete Pipe Company in Jacksonville, and a few weeks ago was elected president of the Concrete Pipe Association.

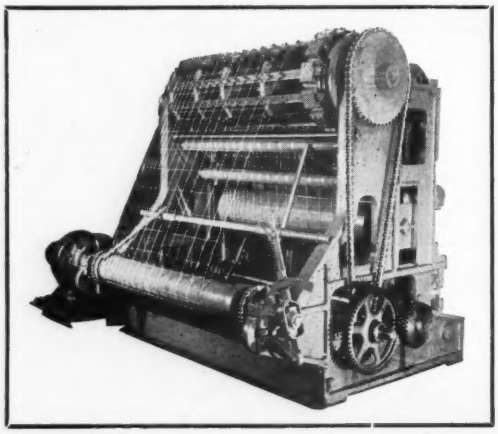
★ ★ ★

The company is the first concern to make welded wire fabric in Florida and is the state's second wire mill. The plant is located on a ten acre tract and is completely modern. It is geared to produce 75,000 sq. ft. of fabric per day.

★ ★ ★

Equipment includes National welders, Morgan wire drawing machines, G. E. electrical equipment and Yale and Towne and Huster material handling equipment.

INTERLOCKING FENCE LOOMS



- Fastest — Most Efficient
- Preferred by Leading Mills
- Low Maintenance Cost.
- Wrapped Stay Fence
- Straight Stay Wires.
- Integrated — Space Saving.
- Replaceable Main Bearings.
- Single or Double Strands.
- Years of Low Cost Production.

Write for Detailed Information — Without Obligation

Interlocking Fence Co., Dept. L, Morton, Ill.

Specialists In Fence Looms

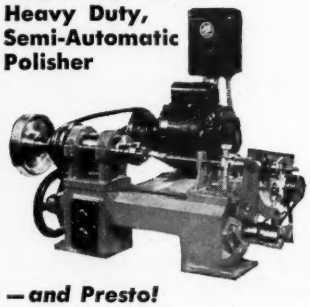
Announcing

The New Type 'M'

DYKREX

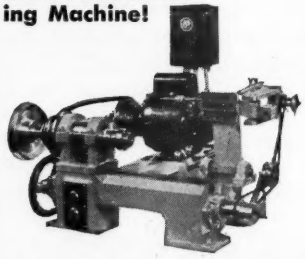
Combined Finishing and Polishing Machine for Tungsten Carbide Dies

Model "M" as a Heavy Duty, Semi-Automatic Polisher



—and Presto!

It's a Hand Finishing Machine!



- No parts are removed from machine
- Fully automatic—just plug it in
- No lost time or motion in changing
- Ball bearing head stock
- From automatic to semi-automatic to hand finishing without changing the die or stopping the motor
- It's a labor saver!

It's New! It's Different!

DYKREX
"IT CORRECTS THE DIE"

Write for full information

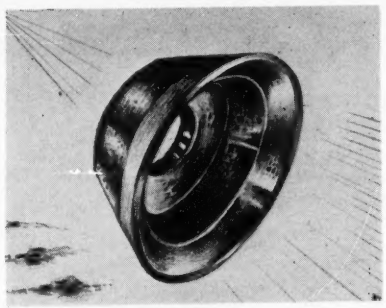
DYKREX CORPORATION OF AMERICA
33-35 Bloomfield Ave., Newark 4, N.J.

Increases Diamond Wheel Production

Diamond Tool Research Co., Inc., 305 E. 45th St., New York 17, N. Y., has emerged as an important new producer of diamond wheels. In business since 1940 this company began making resinoid bonded wheels in 1949.

★ ★ ★

Its parent company, America's largest diamond cutters, provided important backing as to diamond supply and intimate knowledge of diamond technology.



New Diamond Tool Research Co. Product.

★ ★ ★

Beginning with one press and one mold DTR added technicians, equipment and tools until a high rate of deliveries was attained. The present diamond wheel catalog of eight pages is to be supplanted by one of about three times the size which is now at the printers. Copies of the new catalog will go out to all customers soon.

★ ★ ★

Important new developments in bonds are impending and will soon be announced. With the release of the new catalog this company will be in a position to supply sixteen types of diamond wheels in a range of diameters from ⅛" to 8 inches and in a complete range of grits, diamond depths and concentrations. It is suggested that every grinder of carbide place his name on the list DTR is now forming to receive this important new diamond wheel catalog as soon as it is issued.

★ ★ ★

Because of constantly increasing production DTR is able to fill bulk orders for diamond wheels on a four to five month delivery schedule. Emergency requirements for one or two wheels are filled within two weeks.

S. A. ETECO

ZWEVEGEM
(BELGIUM)

Selling Office for Tréfileries León Bekaert, S.P.R.L.

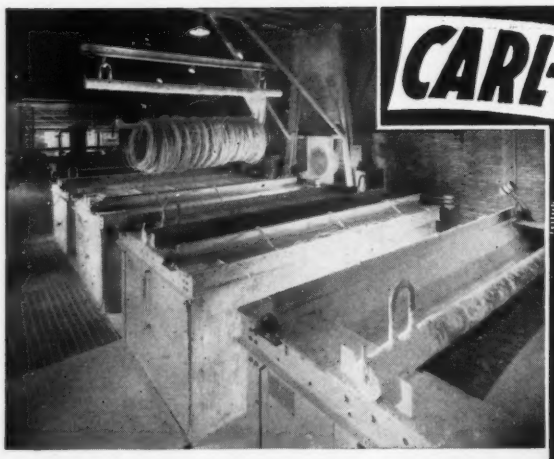
STEEL WIRES

IF YOU REQUIRE

NO CMP REQUIRED

Submit your SPECIFICATIONS To The REPRESENTATIVES:

J. GERBER & CO., INC.
855 Avenue of Americas
NEW YORK 1, N. Y.



CARL-MAYER

HI-SPEED REGISTERED

ROD BAKERS

PATENT Nos.
U.S.A.
2,235,559
2,296,361
2,323,828
CANADA
396,144
401,589

ALSO OTHER TYPES OF INDUSTRIAL OVENS AND FURNACES

GREATER SPEED AND FUEL ECONOMY PROVES OUTSTANDING ENGINEERING

Carl-Mayer Hi-Speed Rod Bakers have an exclusive heating arrangement, combining faster baking with amazing fuel economy — and a patented Blow-Off feature which removes moisture without bumping or agitating the coils. *WRITE FOR BULLETIN NO. 350.*

SERVING CONCERNS LIKE THESE:

American Steel & Wire Co.
Atlantic Wire Co.
Atlas Steel Co.
Atlas Tack Corp.
Babcock & Wilcox
Canadian Steel Corporation.
California Wire Cloth Corp.
Colorado Fuel & Iron Corp.
Crucible Steel Co. of America.
Eaton Manufacturing Co.
Frost Steel & Wire Co., Ltd.
B. Greening Wire Co., Ltd.
Gary Screw & Bolt Division of Pittsburgh Screw & Bolt Corp.
Hollup Corp.
Indiana Steel & Wire Co.
Johnson & Nephew, Ltd.
Jones & Laughlin Steel Corp.
Page Steel & Wire Co.
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THE CARL-MAYER CORPORATION

3030 EUCLID AVENUE
CLEVELAND, OHIO

NORBIDE® Abrasive: *Effective, Economical*

NORBIDE Abrasive, made of Norton Boron Carbide, is second only to the diamond in hardness — *but 150 times less expensive!* It will effectively cut and semi-finish wire drawing dies, particularly those made of the hard cemented carbides.

Write for Catalog No. 559-W

NORTON COMPANY
Worcester 6, Mass.

NORTON *Making better products to make other products better*

Chase Sets Up Employee Training Program

Chase Brass & Copper Company, a subsidiary of Kennecott Copper Corporation, has announced an employe training program.

★ ★ ★

Ernest B. Lawton, director of training and personnel for the Chase Metal Works announced the new employe training program. He said that it is a carefully planned program "to assist any and all employes at the Chase Metal Works to the fullest extent of their potentialities."

★ ★ ★

Time required for study and class attendance, Mr. Lawton reported, will amount to only a few hours a week. He also said that an engineering course had already been started by a small group of men who are reviewing basic arithmetic, algebra, geometry and trigonometry. After completing these reviews the men will study college physics. A course in metallurgy under the direction of **James Chafey** of the Chase Research Laboratory, is also in progress.

★ ★ ★

Mr. Lawton believes that it is important to select a qualified man to put the training program in work. To meet this need, **Walter L. Smith,** works manager has appointed **Eraldus Scala** as Chase Metal Works training director.

★ ★ ★

Mr. Scala has been a member of the Chase Research Department where he has specialized in development work in the casting shop and in alloy research.

Bulletin On Hydraulic Universal Testing Machines

Olsen "L" type hydraulic testing machines in 5 capacities from 60,000 to and including 400,000 lbs. are described in Bulletin 44 recently published. Operating details of these low cost machines, which are intended for use on standard specimens, are included together with specifications.

★ ★ ★

A copy of Bulletin 44 will be sent upon request to **Tinius Olsen Testing Machine Company,** 1160 Easton Road, Willow Grove, Pennsylvania.

INDIAN STANDARDS

It is interesting to note that standards in India are being set up for various products in a manner very comparable to those issued by various societies in this country. In India this is being accomplished by the Indian Standards Institution, who recently have issued standards on two classes of products of interest to our industry: copper conductors and mild steel wire.

Copper Conductors

The standardization of copper conductors for power transmission purposes, was taken up by the I. S. I. Electrical Conductors and Insulators Sectional Committee in view of the fact that electric power is being generated on a large scale in the country and with the completion of multi-purpose projects in hand or about to be taken up, considerable expansion will take place in the power producing units and, with them, in the power transmission systems in the country. The labours of the Committee have resulted in the preparation of "IS: 282-1951 Indian Standard Specification for hard drawn copper solid and stranded circular conductors for overhead power transmission purposes."

★ ★ ★

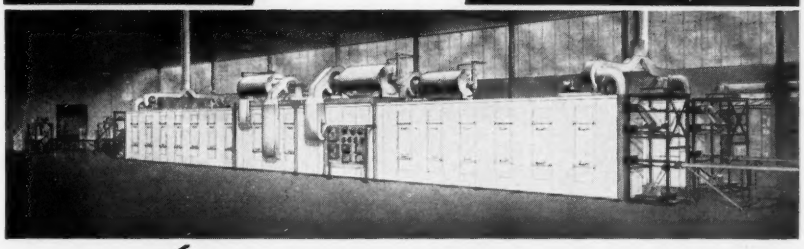
The Standard defines terms used in it, and gives formulas for calculating resistance, density, etc., of hard-drawn copper. It prescribes standard resistance, weights and sizes of solid and stranded conductors: tolerances on them; and mechanical properties, and lays down stipulations in respect of joints and stranding. Only primary sizes of conductors have been included in the specification with a view to rationalizing production and to assist in evolving standardized line designs and construction practices. Though it is realized that secondary sizes may continue to be used for sometime more for replacement and other special requirements, the standard recommends that users should make every endeavor to confine themselves to the size listed in it.

★ ★ ★

The mechanical and electrical tests prescribed are the Lapping, Tensile, Elongation and the Re-

CARL-MAYER WELDING ROD OVENS

PATENT NOS. 1,843,430 2,373,325



One of Several Carl-Mayer Ovens at Hollup Corp.

FAST, EFFICIENT AND ECONOMICAL DRYING OF COATED WELDING RODS.

Only in Carl-Mayer Ovens can you obtain the combination of the recirculating gas fired air heater principle and the "Mayer" patented rod transfer system — two highly important features in ovens of this type.

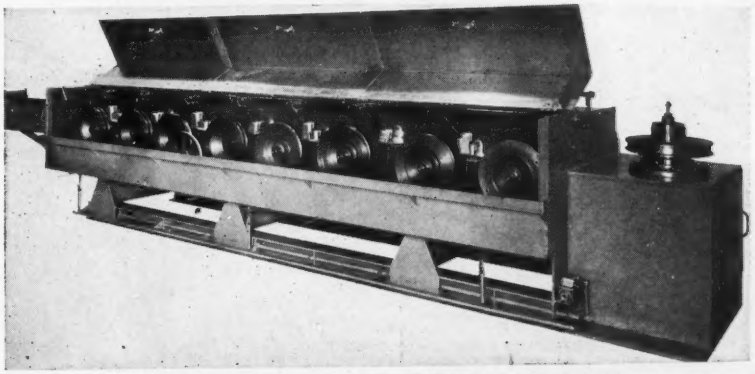
We also build other types of industrial ovens and furnaces. Carl-Mayer installations are backed by reputation for unusual performance, and over 30 years' experience.

WRITE FOR BULLETIN NO. 350

THE CARL-MAYER CORPORATION

3030 EUCLID AVENUE CLEVELAND, OHIO

FINISH UP TO 5000 FT. / MIN.



HIGH SPEED 17 DIE ROD MACHINE

ENTER 5/16" COPPER ROD — FINISH B & S NO. 8 THROUGH NO. 18 COILS OR REEL TAKE-UP

OTHER COOK EQUIPMENT

- Wire Drawing machines
- Bunchers
- Twisters
- Wire String-Up machines
- Enameling Take-Ups and Pay-Offs
- Enameling machines
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- Spoolers
- Special machinery
- Tinning Take-Ups and Pay-Offs
- Tinning Pots
- Wrapping machines

COOK MANUFACTURING COMPANY

265 NORTH 9TH STREET PATERSON 2, N. J.

BUNCHING
(TWISTING)
AND
STRANDING
IN THE WIRE AND
GENERAL MANUFACTURING
PROCESSES

SPECIALIZED
ENGINEERING
AND
SPECIALIZED
FACILITIES
AT YOUR SERVICE

Expanding application of twisting principles to the production of many products is reflected by an ever-increasing demand for both H-D standard equipment as well as machines especially engineered to solve varied production problems. Week after week surprising new uses are developed through the close cooperation of our engineering department with manufacturers in many fields.

Write today for our New Technical Bulletins. Tell us what you make—or contemplate making and your inquiry will receive prompt attention.

HASKELL-DAWES
MACHINE CO., INC.
2231 E. ONTARIO ST.
PHILADELPHIA 34
PA.

sistance tests. The basic constants of hard-drawn copper such as resistance, density, co-efficient of linear expansion, etc., given in the standard correspond to those of BS: 125-1947. The standard fixed for annealed copper by the International Electro-technical Commission (IEC) are reproduced in an appendix, and the question of aligning the Indian Standards with the IEC Standards is under active consideration of the Institution. Though the difference, from the practical point of view is not highly significant, yet the Standard has been issued as tentative, and comments of users are invited for consideration of the committee.

Mild Steel Wire

The Indian standard specification for mild steel wire, recently published covers the requirements for cold drawn mild steel wire, annealed or hard drawn, from .018 inches up to and including .432 inches in diameter, or equivalent cross sectional area of non-circular section.

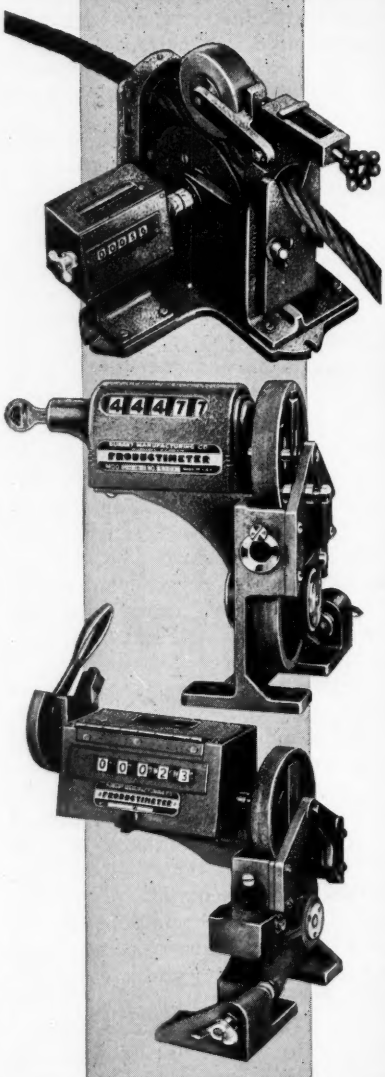
★ ★ ★

Mild steel wires, either black or galvanized, are used in large quantities for various purposes, such as for the manufacture of wire nails, rivets of small sizes, buckets, sheet metal containers, hinges, hasps and staples, and for packing. Some of the foregoing materials are also exported.

★ ★ ★

The standard prescribes the chemical composition of the base metal of the wire in respect of its phosphorous, sulphur and carbon content, the sizes of wires (limited to 31) and tolerances on them. The tests laid down for ascertaining conformity to specified mechanical requirements are tensile test for wires of all sizes, bend test for those of circular sections of 3/16 inches diameter and above, and wrapping test for wires of smaller sizes. Other stipulations in the standard are in respect of coating test, number of tests, selection of test pieces, retests, inspection, etc. It is hoped that this specification will assist manufacturers to produce this commonly used material in appropriate qualities.

PRODUCTIMETER
WIRE MEASURING MACHINES
Fast . . Accurate . . Dependable . . Legible



Productimeters measure all types of wire from .010 to 1½ inches in diameter . . . at speeds up to 5,000 feet per minute. They eliminate "guess-work". . . insure profitable operation in your plant.

Send for Catalog No. 40

DURANT MFG. CO.
1918 N. Buffum St. Milwaukee 1, Wis.
118 Orange St. Providence 3, R. I.
Representatives in Principal Cities

PRODUCTIMETERS
SINCE 1879 Count Everything

7 out of 9

WIRE MILLS

that Liquor Finish Wire

use

STANNOUS SULFATE

because

Tin Losses Are Reduced . . .

by elimination of high tin sludging due to incomplete reaction in feather tin method.

Results Easier to Control . . .

only two variables to watch — Stannous Sulphate and Copper Sulphate — allows immediate, simple color adjustment.

Every Batch the Same . . .

M&T Stannous Sulphate method produces smooth, uniform wire coatings, unvarying from lot to lot.

See how use of M&T Stannous Sulphate can help you save tin in liquor finishing. Write for engineering data.

METAL & THERMIT CORPORATION
Chemical Division
100 E. 42nd St., New York 17, N. Y.
Specialists in Tin and Tin Chemicals

"The Measurement and Control of Temperatures in Industry"

This new book by R. Royds, covers the latest developments in temperature measurement and control to help the metal, chemical, petroleum, glass and refractory, cement, varnish, rubber, textile industries, breweries and distilleries and numerous other industries in maintaining the highest possible thermal efficiency.

★ ★ ★

The various methods and equipment which are available for the measurement of temperatures in each particular range are discussed. Much space is devoted to the standardization and automatic control of temperatures in industry. Attention is given to improving the quality and reliability of industrial products, an increased rate of production, and the saving of fuel and labor by the application of automatic temperature controls.

★ ★ ★

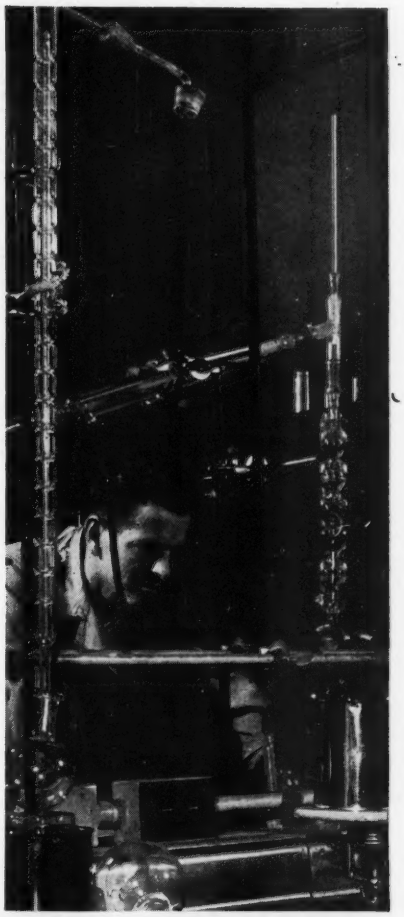
One hundred and sixteen illustrations—among them many interesting graphs—tables and numerous equations for calculating results will prove of great help to engineers. The book is published by the Chemical Publishing Co., Inc., 212 Fifth Ave., New York 10, N. Y. and is priced at $5.00 a copy.

Enthone, Inc., Increases Facilities

New manufacturing and distributing facilities in eight Western states are announced by **Enthone, Inc.,** New Haven, Connecticut, producers of metal finishing processes.

★ ★ ★

The L. H. Butcher Company, Distributor of Enthone metal finishing chemicals and processes since 1943, has recently been granted an exclusive license to manufacture products in Los Angeles to serve the Pacific Coast states and British Columbia. Enthone, Inc., believes that this new relationship brings to the Western metal finishing industry more expeditious and economical service on Enthone compounds for plating on aluminum, blackening metals, derusting and pickling, plate and paint stripping, and metal cleaning. Laboratory facilities and personnel have been provided by Butcher to facilitate the study and application of Enthone Products to the problems of area industries.



HE'S FINDING WAYS TO SAVE YOU MONEY!

He's not on your payroll. Yet this man is vitally interested in reducing your production costs.

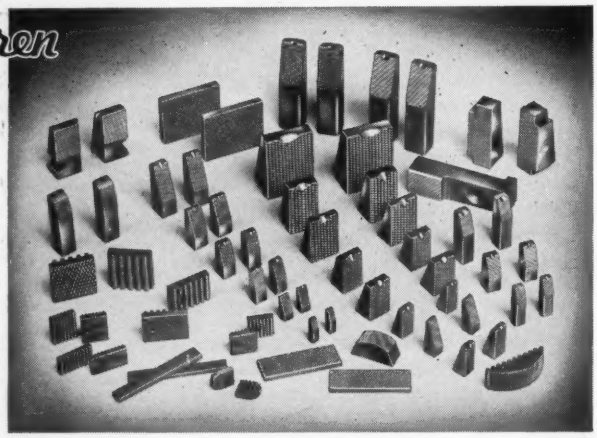
As a skilled technician in New England Lacquer's research department, his main job is to solve your cable coating problems in advance — to help you avoid costly on-the-job slowdowns!

Get complete details about how our research policy can save *you* money. Write today for full information!

NEW ENGLAND LACQUER CO.
150 KING PHILIP ROAD
EAST PROVIDENCE, R. I.

Sjogren

JAWS.... for Wedge Grips, Pullers and Tensile Testing Machines of all makes are available either from stock or manufactured to order. A Sjogren jaw, made to meet your requirements, guarantees you service.



Our Silver 25 1927–1952 Anniversary Year

SJOGREN TOOL AND MACHINE CO., INC.

WIRE PULLERS • WEDGE GRIPS • JAWS FOR ALL MAKES OF PULLERS AND TESTING MACHINES • CAGE ROLLERS • SWAGING HAMMERS • POINTING DIES • WIRE SPOOLERS

14 SWORD STREET
AUBURN
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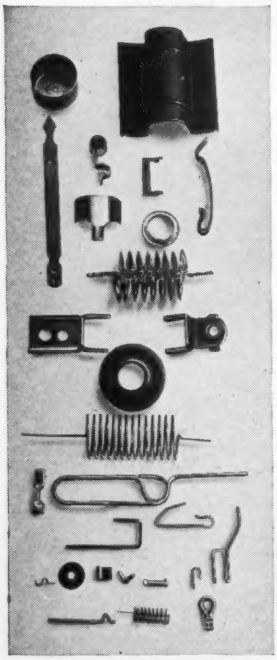
Represented in Canada by THE LARSON CO., 98 Wellington St., West, Toronto, Ont.

Priced Right!

WIRE FORMS

& Metal Stampings



High-speed, quality production with custom-made precision. Wire formed in any shape for every need.

IMMEDIATE CAPACITY FOR DEFENSE SUB-CONTRACTS

STRAIGHTENING & CUTTING
Perfect straight lengths to 12 ft.
.0015 to .125 diameter

WIRE FORMS
.0015 to .080 diameter

SMALL METAL STAMPINGS
.0025 to .035 thickness
.062 to 3 inches wide

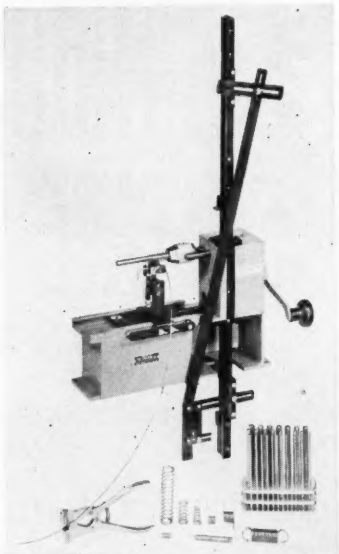
Specializing in Production of Parts for Electronic and Cathode Ray Tubes

Write for illustrated folder.
Send Blueprints or Samples for Estimate.

ART WIRE and STAMPING COMPANY
4-A BOYDEN PLACE
NEWARK 2, N. J.

New Hand-Operated Spring Coiler

This very popular hand-operated spring coiling machine for making compression, extension and torsion springs has been completely redesigned to include a structural steel baseplate, an improved method for cam adjustment, and several other features which make it especially useful for making experimental and small production lots of springs up to about 1,000 pieces.



Carlson Company's new hand operated spring coiler

★ ★ ★

Compression springs are coiled with both ends squared automatically. Extension and torsion springs can be wound either left or right hand with long extended arms on both ends. The set-up time is usually less than five minutes, and about 300 precision springs exactly alike can be wound per hour.

★ ★ ★

The machine will handle wire of diameters from .004" to .063" with outside diameters up to 1" and spring lengths up to 4". Arbors, wire cutters and extra coiling points are included. Shipping weight 50 lbs.

★ ★ ★

For further details, please write to the **Carlson Company**, 277 Broadway, New York 7, N. Y.

Instrument Show To Be Held

More than 10,000 engineers will come to Cleveland during September 8-12, 1952 for the Seventh National Instrument Conference and exhibit sponsored by the **Instrument Society of America.** This will be the largest conference and exhibit, covering instruments and devices for measurement, inspection, testing, and automatic control, ever held in the United States.

★ ★ ★

A technical program consisting of some 39 technical sessions has been arranged for the ISA and other organizations cooperating in the Conference. The Industrial Instruments and Regulators Division of the American Society of Mechanical Engineers is conducting a special symposium on "High Pressure Measurements". Others cooperating are the American Institute of Physics; the American Institute of Electrical Engineers; the Cleveland Physics Society; the Institute of Radio Engineers, Cleveland Section; and the Scientific Apparatus Makers Association.

New Booklet Describes Fidelity-Sinfra Knitters

A new 16-page brochure describes and illustrates the operation, principles and advantages of the Fidelity-Sinfra wire covering machines, by which knitted wire coverings are applied at high rates of speed to weatherproof wire and cable, building wire and non-metallic sheathed cable, using cotton, glass or other yarns.

★ ★ ★

The booklet includes the latest Fidelity-Sinfra models and gives full information on each. Besides mechanical data, the economic factors involved in the use of knitters in wire covering are discussed.

★ ★ ★

For a copy of this interesting brochure, write to **Fidelity Machine Company,** 3908 Frankford Avenue, Philadelphia 24, Pa., U.S.A.

New Booklet Describes Extrusion Machines

A four-page booklet has been published that describes the extruders designed, fabricated and in-

ANNOUNCING • • •

AN IMPORTANT PLANT EXPANSION

To serve our customers' growing demands upon us for the original famous dowel constructed

PLYWOOD REELS

The company has purchased a three-story factory that will add 40,000 sq. ft. to floor space, in addition to the boiler house and kilns. The new plant, when in full operation, will employ about 50 men. Reels will continue to be manufactured in Ashuelot.

Because we own forests, operate our own saw mills and drying kilns, manufacture our own plywood and the finished reels, we are in a position to control the quality of our reels—for 20 years our only product.

Get the facts today on these fine reels

WINCHESTER REEL COMPANY, Inc.

ASHUELOT, N. H. **TEL.: WINCHESTER 163-2**

Our Products Carry Reel Loads.

WIRE DRAWING

FROM .0403" TO .005" (Not Annealed)

FERROUS and NON-FERROUS WIRES

SPECIALISTS IN:

- **WIRE STRANDING**
- **BUNCHING**
- **SPOOLING**
- **BRAIDING**

Please write to

BUT WITH CONFIDENCE ANCHOR QUALITY

ANCHOR WIRE CORPORATION

183-16 JAMAICA AVE.

JAMAICA 3, LONG ISLAND, NEW YORK

Here's a Good Tip For Better Lubricating Film . . . Use

BORAX

• More and more, smart wire mills are switching to a BORAX solution for coating wire-stock surfaces before drawing. They choose BORAX because the residual film it produces stays tight, yet pliable, and is an excellent vehicle for the drawing lubricant. A BORAX solution coats steel wire with just ONE DIP . . . film dries quickly in just a few minutes.

Here Are The Advantages of Borax-Coated Stock:

- **Compatible with drawing lubricant.**
- **Cleaner to handle in transit.**
- **Remains in better condition . . .** *an adequate supply can be stored for weeks without reconditioning.*
- **No cleaning of ends necessary before electric butt welding.**
- **Rust inhibited . . . no oxide film forms.**
- **Can be cleaned most easily.**

WRITE FOR FULL INFORMATION

PACIFIC COAST BORAX CO.

DIVISION OF BORAX CONSOLIDATED, LIMITED

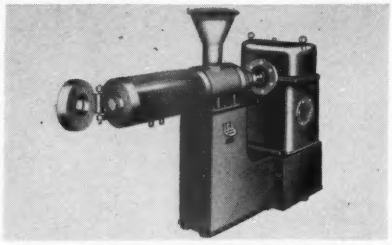
NEW YORK • CHICAGO

LOS ANGELES • CLEVELAND

PHILADELPHIA

MANUFACTURERS OF FAMOUS 20 MULE TEAM PACKAGE PRODUCTS

stalled by the newly organized Allen Extrusion Machine Division of Industrial Ovens, Inc.



Allen Extrusion Machines

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New Theory on Blackening of Metals

A new and important theory on blackening of metals developed in the laboratories of Lehigh University's Institute of Research and Enthone, Inc., New Haven, was reported at the annual meeting of the American Electroplaters' Society at Chicago on June 16.

★ ★ ★

The paper was delivered by Dr. Walter R. Meyer, President of Enthone, Inc., well-known producers of metal finishing processes. It is the product of combined research work done by Dr. Meyer, Dr. Earl J. Serfass, head of Lehigh University's Chemistry Department, and Dr. Ralph F. Muraca, Assistant Profes-

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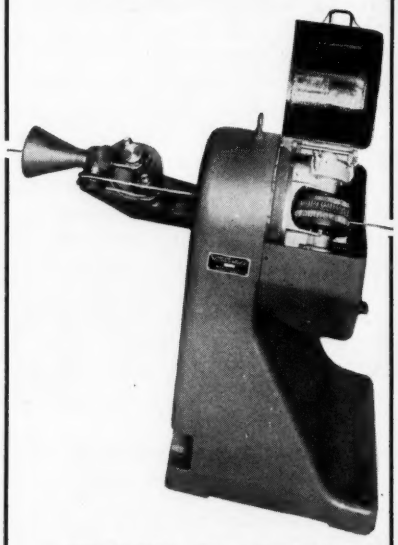

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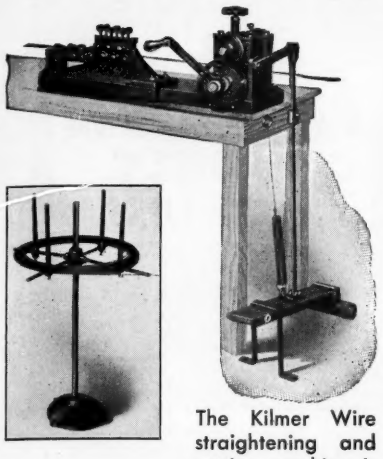

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sor of Chemistry at Lehigh University.

★ ★ ★

The study was of a thermodynamic nature and explains the reactions in black nickel plating and sulphide blackening of other metals. Prior to now the chemical mechanism of these processes was not known.

★ ★ ★

The Perfect Profile

(Continued from page 784)

100% or was curved instead of cylindrical. The shape and orientation of the throat with respect to the reduction zone were often faulty also. It was no wonder that so many supposedly identical dies were giving radically different results.

★ ★ ★

The geometric design of the instrument makes for simplicity of construction as well as accuracy in performance, as the latter depends on a number of precision movements—lever arm pivot, feeler arm pivot, vertical spindle motion and carriage motion. But it must not be thought that the B.I.S.R.A. profilometer can be operated by anyone. It requires skilled handling. On the other hand, it does give results that can be relied on. In Britain it is thought that this instrument may have far-reaching results in die-shaping and wire drawing practice. Already it has played havoc with much past research into the mechanics of wire drawing, particularly where a relationship between drawing force and die angle was sought. It has also drawn attention to many shortcomings in present methods of die shaping. For instance, it has been suggested that hand polishing may be a primary cause of profile distortion. Whether the finish of the die should be high or matt is another point under discussion. It is now contended that a matt finish both improves the precision of the profile and reduces the cost of die maintenance.

★ ★ ★

Investigations into the causes and mechanism of die wear are still in progress in the B.I.S.R.A. laboratories. The fact that die performance varies so widely both as between individual dies and individual mills leaves much room for research. For this, the bore profilometer is a first-rate tool.

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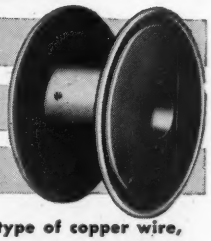

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Firth Sterling Affiliate Appoints Chief Engineer

Paul Porterfield has been appointed chief engineer of The Method X Company, an affiliate of Firth Sterling, Inc. Before coming to Method X, Mr. Porterfield was an electronic engineer for the Chesapeake & Ohio Railroad Company, where he was in charge of their entire electronic program.

★ ★ ★

He attended Northwest Missouri State Teachers College, and the University of Miami, majoring in industrial engineering. He also attended Air Craft Radio Lab in Dayton, Ohio.

The Evolution of the Galvanizing Pot

(Continued from page 774)

silica coating is to eliminate all iron from the galvanizing pot that goes to make dross and to stop the attack of the molten zinc on the galvanizing pot itself, thereby increasing the life of the pot indefinitely.

★ ★ ★

Summary

In briefly reviewing the evolution of the modern hot-dip galvanizing

pot we find—

1. Construction Types
   a. The earliest types were riveted construction.
   b. The first forge welding was done about 1895, but it was not until 1910 that forge welding was used in galvanizing pot construction.
   c. The first hammer welded pots were made about 1920. Pneumatic hammers replaced hand labor.
   d. The first electric welded pots were made in 1929.

2. Kinds Of Materials Used
   a. A number of early pots were made of cast iron.
   b. Cast steel was also tried.
   c. Flange Steel, or Boiler rivet steel was an early plate steel used.
   d. Some of the early pots had Firebox Steel Sides, and Flange Steel bottoms and ends.
   e. Firebox Steel became most prominent as a construction material for pots.
   f. Special Open Hearth Steel was also tried.
   g. Armco Ingot Iron was also used.
   h. Locomotive Firebox Steel was considered the best plate material.
   i. Today the most universal material is a Special Grade of Locomotive Firebox Steel.

3. Kinds And Shapes Of Riveted Pots
   a. The Reversed Flange Steel Pattern, Rectangular shape was the first type of riveted pot.
   b. The V-Shaped, and the Riveted Round Types were the second type of riveted pots.
   c. The third type was the Riveted U-Shaped pot type.
   d. A variation of the above were the Heavy riveted type pots.
   e. Another type was the flat U-Shaped Riveted type.

4. Kinds And Shapes Of Forge Welded Pots
   a. Forge Lapwelded Type, the first welded kettle with a guarantee against leaks.
   b. Pots of various shapes held together with clamps while they were placed in the forge fire. Early welding was done in coke fires.
   c. Pots made by Natural Gas Fired Forges; cleaner fires which eliminated the sulphur problem.

5. Kinds And Shapes Of Hammer Welded Pots
   a. Forged Hammer Welded, and Lapwelded pots using most of the early shapes and types. Power driven carriages carried the assemblies; power actuated gas fired heating forges were arranged to heat both inside and outside of seam to be welded; pneumatic hammers greatly speeded production, and eliminated much hard hand labor.

6. Kinds And Shapes Of Electric Welded Pots
   a. The first Electric Welded Kettle, with a guarantee against leaks was Rectangular in shape.
   b. Heavy Welded Rectangular Electric Weld Type Sheet pots.
   c. U-Shaped Electric Welded Pots.
   d. V-Shaped Electric Welded Pots.
   e. Electric Welded Round Bottom Type.
   f. Electric Welded Taper and Square End Pots.
   g. Shielded Arc Electric Welded Pear Shaped Type.

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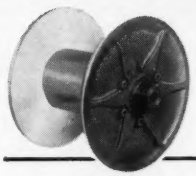

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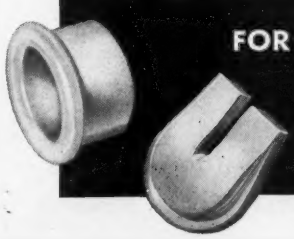

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Bibliography

1. AMERICAN METAL MARKET: (Articles by Wallace G. Imhoff)
The Cause of the Corrosion and Destruction of Zinc Coating Pots (Galvanizing) Pots. Review Section. Sept. 18, 1928.
The Destructive Action of Molten Zinc at and Above Zincing (Galvanizing) Temperatures Upon Metals and Alloys. (Series of 11 articles starting Oct. 16, 1928 and published to Oct. 21, 1930.)
Metalware Galvanizing Pots. March 3, 1933; March 4, 1933.
How Thick Should the Sides of Galvanizing Pots Be? April 17, 1934.
Adjustment, Refinement, and Co-Ordination Factors in Lengthening the Life of Hot-Dip Galvanizing Pots. Series—7 Articles—Started June 15, 1934—Ended Sept. 26, 1934.
The Diffusion of Zinc and Iron at Temperatures Below the Melting Point of Zinc—Feb. 22, 1935. (Original Paper by Gilbert Rigg, Journal of The Institute of Metals, Vol. LIV, No. 1, 1934.
The Diffusion of Zinc and Iron at Temperatures Above the Melting Point of Zinc, by Wallace G. Imhoff, PRODUCTS FINISHING, January 1939.
How Far Below the Top of the Galvanizing Pot Should the Surface of the Galvanizing Bath Be? July 13, 1935.
Galvanizing Pot Life May Be Increased by Changing the Dross Level, Sept. 20, 1935.
2. STEEL: (Articles by Wallace G. Imhoff)
Zinc Alloys Destroy Galvanizing Pots. Iron Trade Review, July 10, 1930.

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Galvanizing Pots Destroyed by Zinc-Iron Alloys. Iron Trade Review, July 24, 1930.
Coating Industry Recognizes Prestige of Deep, Side-Heated Galvanizing Pots. STEEL, January 4, 1932.
Develops Double Boiler Galvanizing Pots. Yearly Review—STEEL—January 6, 1941—page 251.
Failure of Galvanizing Tanks Blamed on Small Capacities. Yearbook—STEEL—January 6, 1947—page 291.
Refractory Lining Boosts Galvanizing Pot Life. Yearbook—STEEL—January 1, 1951—page 233.
IRON AGE (Articles by Wallace G. Imhoff)
Destruction of Galvanizing Pots. January 23, 1930.
Galvanizing Pot Destruction. February 27, 1930.
Critical Temperatures in Galvanizing. March 27, 1930.
Estimating Galvanizing Pot Life. April 17, 1930.
How Long Does a Hot-Dip Galvanizing Pot Last? April 16, 1931.
INDUSTRIAL GAS: (Articles by Wallace G. Imhoff)
Heat Distribution in Gas-Fired Galvanizing Pots. April 1931.
The Heat Intensity Problem in Galvanizing Pots. January 1932.
Evaluation of Fuel Requirements of Hot-Dip Galvanizing Pots. Sept. 1934.
Basic Principles of Combustion Engineering of Hot-Dip Galvanizing Furnaces. Series of 31 articles on gal-

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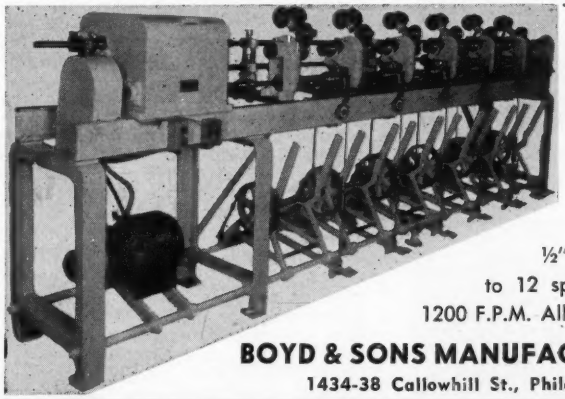

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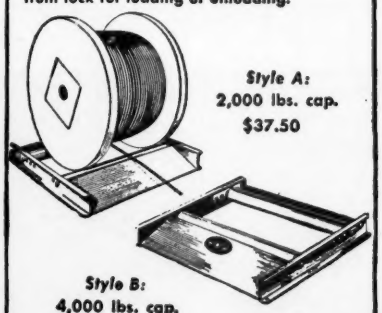

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Good Galvanizing Practice Results in Long Pot Life. February 1947.

Factors Used to Determine Galvanizing Pot Length, Width, Depth, and Side Thickness. September 1947.

Approximate Tables to use for Drawing Up Hot-Dip Galvanizing Pot Specifications. August 1948. (3 Articles in series.)

A Discussion of Causes of Pot Failure at the Top of the Kettle. June 1951.

AMERICAN MACHINIST:

Why So Many Galvanizing Pot Shapes. By Wallace G. Imhoff, Apr 1 6, 1938. Page 276-278.

PURCHASING AGENT:

The Purchasing Agent Has A Chat With the Galvanizer About Their Pot Failure. By Wallace G. Imhoff. January 25, 1929.

WIRE AND WIRE PRODUCTS:

A Practical Discussion of Zinc-Iron Alloys. July 1941. By Wallace G. Imhoff.

PRODUCTS FINISHING:

Hot Spots Cause Short Hot-Dip Galvanizing Pot Life. By Wallace G. Imhoff, December 1942.

THE MAKING, SHAPING AND TREATING OF STEEL: (Sixth Edition) 1951

Galvanizing Pots: Pages 944 to 955 inclusive.

NOTE: Special thanks for galvanizing pot pictures and practical information on galvanizing pot history and construction in private correspondence is acknowledged to—

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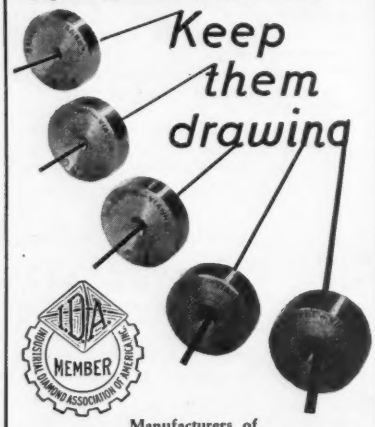

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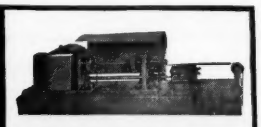
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Pennsalt, Sharples Chemicals Research Groups to Be Integrated

The Research Department of Sharples Chemicals, Inc. will be integrated with the Research and Development Division of the parent company, the Pennsylvania Salt Manufacturing Co., it has been announced by Dr. W. A. LaLande, Jr., manager of Pennsalt's division.

★ ★ ★

The intergration will occur between June 15 and Sept. 15, Dr. LaLande said. Meanwhile, laboratory facilities at Whitemarsh Hall are being considerably extended by the conversion of additional rooms to laboratories and rearrangement of existing facilities to provide not only for the addition of Sharples research personnel but also to increase Pennsalt's facilities.

★ ★ ★

The physical combination of the two experienced organic research groups at Whitemarsh Research Laboratories with the subsequent daily interchange of ideas and know-how gives Pennsalt an unusually strong organization for attacking a wider range of problems in organic technology, and for developing new and improved products through the use of present Pennsalt and Sharples starting materials.

Circular Case Electric Control Thermometers

Catalog 6482 describes recording and indicating circular case electric control industrial thermometers used for temperature control on drying ovens, cooking kettles, lumber kilns and plating tanks. Information on available switching action, chart and scale ranges, dimensions and bulb and tubing variations is included.

★ ★ ★

This catalog is available to our readers. Please send inquiries to **Brown Instruments Division, Minneapolis-Honeywell Regulating Co.,** Wayne and Windrim Aves., Philadalphia 44, Pa.

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★ ★ ★

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★ ★ ★

Formerly the drums were dumped out of rail cars onto mats, then rolled on planking to the storage area. Because they couldn't use a truck for the stacking job, laborers were able to stack the drums just two-high. Now the truck makes four-high stacking a cinch.

Westinghouse Holds Material Handling Course For Supervisors And Foremen

Supervisors and foremen of the **Westinghouse Electric Corporation's** East Pittsburgh Works are currently participating in a 12 session materials handling course. Designed to help in the reduction of the estimated $100,000,000 cost of moving materials in 1951 in Westinghouse, the course is open to selected representatives of all of the departments of the plant.

★ ★ ★

Topics of discussion include plant layout, problem analysis, improvement procedures, techniques, equipment, in-process handling, packaging, storing and other subjects considered to be of prime importance in good materials handling. The weekly two hour sessions are filled with lectures, movies or slides, and a discussion period. In addition, printed matter pertinent to the particular phase of materials handling being covered is distributed to the class.

★ ★ ★

As a part of the course, class members are required to undertake a materials handling project in their respective departments and work them through to completion. Occasionally, the class goes into the shop to observe some member's project and to discuss the various features.

★ ★ ★

The program is coordinated by the East Pittsburgh Supervisory training Department and is presented by **R. W. Mallick**, a staff engineer of the Executive Department.

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John Moritz Convalescing after Operation

John A. Moritz, Superintendent of Wire Mills of Keystone Steel and Wire Company and President of The Wire Association, is reported to be doing very well after a serious operation that was performed in June. John was apparently in the best of health at the Pittsburgh Regional Meeting and the news of his illness came as a shock to his many friends throughout the wire industry. Everyone in the Assocation extends to him, his very best wishes and hope for a speedy recovery. He is convalescing in the Methodist Hospital, Peoria, Illinois.

Appointed to Executive Engineering Post By Westinghouse

Appointment of J. C. Fink as engineering manager of industrial products has been announced by J. K. Hodnette, vice-president and general manager of industrial products for the Westinghouse Electric Corporation.

★ ★ ★

Mr. Fink, formerly assistant to the vice-president in charge of engineering, will coordinate the engineering activities of all the Industrial Products divisions. He went to Westinghouse first in 1927.

★ ★ ★

From 1928 to 1945 he was a member of the marine and aviation section of the industry engineering department of Westinghouse. He then was appointed manager of the general mill section of that department with supervision of engineers engaged in applying electrical equipment to paper, machine tool, textile, rubber, food and materials handling industries. In 1948 he was named manager of the industry engineering department, and in 1949 attained the position he held prior to this appointment.

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DIES—Cold Heading
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth Sterling, Inc., Pittsburgh, Pa.
Indiana Wire Die Co., Ft. Wayne, Ind.
Metal Carbides Corporation, Youngstown, Ohio
Vascoloy-Ramet Corp., No. Chicago, Ill.

DIES—Diamond
Ajax Industrial Supplies, Inc., Fort Wayne, Ind.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Boulin, Victor J., Inc., New York, N. Y.
Cochaud Wire Die Corp., New York, N. Y.
Ft. Wayne Wire Die, Inc., Fort Wayne, Ind.
Hoosier Wire Die, Inc., Ft. Wayne, Ind.
Indiana Wire Die Co., Ft. Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
New England Wire Die Co., Worcester, Mass.
North American Philips Co., Inc., New York, N.Y.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

DIES—Extrusion
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth Sterling, Inc., Pittsburgh, Pa.
Metal Carbides Corporation, Youngstown, Ohio
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

DIES—Eyelet
Eastern Carbide Corp., New Rochelle, N. Y.
Kelly Wire Die Corp., New York, N. Y.

DIES—Pointing
Sjogren Tool and Machine Co., Auburn, Mass.

DIES—Repairs & Re-Cutting
Ajax Industrial Supplies, Inc., Fort Wayne, Ind.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Boulin, Victor J., Inc., New York, N. Y.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Cochaud Wire Die Corp., New York, N. Y.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth Sterling, Inc., Pittsburgh, Pa.
Ft. Wayne Wire Die, Inc., Fort Wayne, Ind.
Hoosier Wire Die, Inc., Ft. Wayne, Ind.
Indiana Wire Die Co., Ft. Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corporation, Youngstown, Ohio
New England Wire Die Co., Worcester, Mass.
North American Philips Co., Inc., New York, N. Y.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.
Wayne Wire Die Co., Hillside, N. J.

DIES—Special Shapes, Etc.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth Sterling, Inc., Pittsburgh, Pa.
Hoosier Wire Die, Inc., Ft. Wayne, Ind.
Indiana Wire Die Co., Ft. Wayne, Ind.
Murex, Ltd., Rainham, England.

DIES—Swaging
Murex, Ltd., Rainham, England
Sjogren Tool and Mach. Co., Inc., Auburn, Mass.

DIES—Tube Drawing
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth Sterling, Inc., Pittsburgh, Pa.
Indiana Wire Die Co., Fort Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corp., Youngstown, O.
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.

DRAW BENCHES—
(See MACHINERY—Draw Benches)

DRUMS & TRAVERSES—Flange Steel
Entwistle, Jas. L. Co., Providence, R. I.
Niles Steel Products Division, Republic Steel Corporation, Niles, Ohio

WHERE TO BUY, Continued

DRYING EQUIPMENT—
Carl-Mayer Corp., The, Cleveland, Ohio
Industrial Ovens, Inc., Cleveland, Ohio
Rockwell, W. S. Co., Fairfield, Conn.

ENGINEERS—Consulting
Metal Fatigue—Fatigue of Materials Laboratory, Princeton, N. J.
Wire Mill—Lewis, Kenneth B., Worcester, Mass.
Zinc—Imhoff, Wallace G., Co., No. Highlands, Calif.

EYELETS—Brass or Zinc
Platt Bros. & Co., The, Waterbury, Conn.

FENCING & FENCES—Wire
Interlocking Fence Co., Morton, Ill.

FOAM PRODUCING COMPOUNDS—
American Chemical Paint Co., Ambler, Pa.
Parkin Chemical Co., The, Pittsburgh, Pa.

FURNACES—Brazing
Electric Furnace Co., Salem, Ohio
Harper Electric Furnace Corp., Buffalo, N. Y.
Rockwell, W. S. Co., Fairfield, Conn.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

FURNACES—Galvanizing Equipment
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio
Trauwood Engineering Co., The, Cleveland, Ohio
Wilson, Lee, Engr. Co., Cleveland, Ohio

FURNACES—Heat Treating
Ajax Electric Co., Inc., Philadelphia, Pa.
Carl Mayer Corp., The, Cleveland, Ohio
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Morrison Industries, Bedford, Ohio.
Rockwell, W. S., Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio
Trauwood Engr. Co., Cleveland, Ohio.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.
Wilson, Lee, Engr. Co., Cleveland, Ohio

FURNACES—Lead Melting
Electric Furnace Co., Salem, Ohio
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

FURNACES—Pot (oil, gas, electric)
Ajax Electric Co., Inc., Philadelphia, Pa.
Holden, A. F., Co., The Detroit. Mich.
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

FURNACES—Resistance Heating, Strand
(See Annealing Machines)

FURNACES—Salt Bath
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

GALVANIZING EQUIPMENT — (See MACHINERY—Galvanizing Wire)

GRINDERS—Roll
Norton Co., The, Worcester, Mass.

HAMMERS—Swaging
Sjogren Tool and Machine Co., Auburn, Mass.

HOOKS—Pickling & Liming
Bronze Die Casting Co., Pittsburgh, Pa.
Heil Process Equipment Corp., Cleveland, Ohio
Youngstown Welding & Eng'g. Co., Youngstown, Ohio

HOISTS—Electric Travelling
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, Ohio

IMPREGNATING MATERIALS—
Solar Compounds Corporation, Linden, N. J.

INHIBITORS—Pickling
American Chemical Paint Co., Ambler, Pa.
Apex Alkali Products Co., Philadelphia, Pa.
Parkin Chemical Co., The, Pittsburgh, Pa.

INSULATING MATERIALS—
Glass Fibers, Inc., Toledo, Ohio
Heineman Corp., Oscar, Chicago, Ill.
Merrimac Paper Co., New York, N. Y.
New England Lacquer Co., E. Providence, R. I.
Solar Compounds Corporation, Linden, N. J.
Solar Varnish Corp., Linden, N. J.

INSULATING MATERIALS—Paper—For Electric Wire Cable.
Merrimac Paper Co., New York, N. Y.
Solar Compounds Corporation, Linden, N. J.
Solar Varnish Corp., Linden, N. J.

LACQUERING SYSTEMS — See MACHINERY—Lacquering Electric Wire

LACQUERS—For Electric Wire
New England Lacquer Co., E. Providence, R. I.
Solar Compounds Corporation, Linden, N. J.

LAME—LAHN—
Montgomery Co., The, Windsor Locks, Conn.

LIME—
Warner Co., Philadelphia and Bellefonte, Pa.

LUBRICANTS — For Metal Cutting, Stamping and Drawing
Apex Alkali Products Co., Philadelphia, Pa.
Magnus Chemical Co., Garwood, N. J.
Miller, R. H., Co., Inc., Homer, N. Y.
Nopco Chemical Co., Harrison, N. J.
Standard Industrial Compounds Co., Chicago, Ill.

LUBRICANTS—Wire Drawing
(See Compounds—Wire Drawing)

LUBRICANTS—Wire Rope
Swilt & Co., Chicago, Ill.

LUMBER—Wire Mill, Carload shipments for lagging and car blocking
North Anson Reel Co., No. Anson, Me.

MACHINERY—Armoring (Cable, Wire Hose)
American Insulating Mach'y Co., Phila., Pa.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc., (used), Pawtucket, R. I.

MACHINERY—Barbed Wire
Glader Machine Works, Chicago, Ill.
Wean Engineering Co., Cleveland, Ohio

MACHINERY—Bolts & Rivets
Meyer, Roth & Pastor Maschinenfabrik, Koln-Raderberg, Germany

MACHINERY—Braiding
Fidelity Machine Co., Inc., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Solomon, Michael, New York, N. Y.
Wardwell Braiding Machine Co., Central Falls, R. I.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Bunching
Cook Manufacturing Co., The, Paterson, N. J.
Federal Manufacturing Co., Wallingford, Conn.
Haskell-Dawes Machine Co., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Bundling, Scrap
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Cable, Electric
American Insulating Mach'y Co., Phila., Pa.
Fidelity Machine Co., Inc., Philadelphia, Pa.
Haskell-Dawes Machine Co., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Capstans (See Machinery—Wind-Up)

MACHINERY—Chain Making
Meyer, Roth & Pastor Maschinenfabrik, Koln-Raderberg, Germany
Nilson, A. H. Machine Co., Bridgeport, Conn.

MACHINERY—Closing Rope
Watson Machine Co., Paterson, N. J.

MACHINERY—Coiling Rod
Vaughn Mach'y Co., Cuyahoga Falls, O.
Waterbury-Farrel Fdry. & Mach. Co., Waterbury, Conn.

MACHINERY—Cold Heading
Waterbury-Farrel Fdry. Mach. Co., Waterbury, Conn.

MACHINERY—Copper Wire Drawing
Aetna-Standard Engineering Co., Pittsburgh, Pa.
American Insulating Mach'y Co., Phila., Pa.
Fenn Manufacturing Co., The, Hartford, Conn.
National Mach'y Exch. (Used), New York, N. Y.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Fdry. & Mach. Co., Waterbury, Conn.

MACHINERY—Covering Wire (See MACHINERY—Insulating Wire)

MACHINERY—Cutting
Eisler Engineering Co., Newark, N. J.
Lewis Machine Co., The, Cleveland, Ohio
Mettler Machine Tool, Inc., New Haven, Conn.
Porter, H. K., Inc., Somerville, Mass.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Descaling Rod, Dry
Fisher Associates, New York, N. Y.

MACHINERY—Die Making
Victor J. Boulin, Inc., New York, N. Y.
Carboloy Dept. General Electric Co., Detroit, Mich.

MACHINERY—Descaling Rod, Dry
Fifth Sterling, Inc., Pittsburgh, Pa.
Kelly Wire Die Corp., New York, N. Y.
Dykrex Corp., Roos Tool & Mfg. Div., Newark, N. J.
Wayne Wire Die Co., Hillside, N. J.

MACHINERY—Draw Benches
Aetna-Standard Engineering Co., Pittsburgh, Pa.
Morgan Construction Co., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Wartenweiler, Emilio, Milano, Italy

MACHINERY—Edging (See MACHINery — Tandem Rolling and Edging Mills)

MACHINERY—Enameling
American Insulating Mach'y Co., Phila., Pa.
Cook Manufacturing Co., The, Paterson, N. J.
Industrial Ovens, Inc., Cleveland, Ohio
Michigan Oven Co., Detroit, Mich.

MACHINERY—Extruding
Aetna-Standard Engineering Co., Pittsburgh, Pa.
National Rubber Machinery Co., Akron, Ohio
Royle, John, & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R. I.

MACHINERY—Fence
Glader, Wm., Machine Works, Chicago, Ill.
Interlocking Fence Co., Morton, Ill.
Malmedie Maschinenfabrik, Dusseldorf, Germany
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Filament Coil Winding
Eisler Engineering Co., Newark, N. J.

MACHINERY—Flat Wire
Fenn Manufacturing Co., The, Hartford, Conn.
Mettler Machine Tool, Inc., New Haven, Conn.
Torrington Mfg. Co., Torrington, Conn.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Forming Wire
Baird Machine Co., Stratford, Conn.
Nilson, A. H., Machine Co., Bridgeport, Conn.

MACHINERY—Galvanizing Wire
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, O.
Wilson, Lee, Engr. Co., Cleveland, Ohio

MACHINERY—Gang Winders
Entwistle, Jas. L. Co., Providence, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Grinding
Norton Co., The, Worcester, Mass.

MACHINERY—Insulating Wire
Aetna-Standard Engineering Co., Pittsburgh, Pa.
American Insulating Mach'y Co., Phila., Pa.
Ets. Pourtier Frères, Romainville, France
Fidelity Machine Co., Inc., Philadelphia, Pa.
National Rubber Machinery Co., Akron, Ohio
New England Butt Co., Providence, R. I.
Royle, John & Sons, Paterson, N. J.
Solomon, Michael, New York, N. Y.
Syncro Machine Co., Perth Amboy, N. J
Wardwell Braiding Machine Co., Central Falls, R.I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Knitting
Fidelity Machine Co., Inc., Philadelphia, Pa.

MACHINERY—Lacquering Electric Wire
American Insulating Mach'y Co., Philadelphia, Pa.
Industrial Ovens, Inc., Cleveland, O.

MACHINERY—Lock Washer
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Looms, Wire Weaving
Interlocking Fence Co., Morton, Ill.

MACHINERY—Material Handling (See Material Handling Equipment)

MACHINERY—Measuring Wire & Cable
Davis Electric Co., Wallingford, Conn.
Durant Mfg. Co., Milwaukee, Wis.
Entwistle, Jas. L. Co., Providence, R. I.
New England Butt Co., Providence, R. I.
Standard Mill Supply Co., Pawtucket, R. I.
Watson Machine Co., Paterson, N. J.

WHERE TO BUY, Continued

MACHINERY—Nail and Tack
Baird Machine Co., The, Stratford, Conn.
Glader, Wm., Machine Works, Chicago, Ill.
Meyer, Roth & Pastor Maschinenfabrik, Koln-Raderberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Pickling
Chemsteel Construction Co., Pittsburgh, Pa.
Youngstown Welding & Eng'g. Co., Youngstown, Ohio

MACHINERY—Pin Making
Baird Machine Co., The, Stratford, Conn.

MACHINERY—Pointing
Aetna-Standard Engineering Co., Pittsburgh, Pa.
Meyer, Roth & Pastor Maschinenfabrik, Koln-Raderberg, Germany
Morgan Construction Co., Worcester, Mass.
National Mach'y Exch. (Used), New York, N. Y.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Poultry Wire Fencing
Interlocking Fence Co., Morton, Ill.
Malmedie Maschinenfabrik, Dusseldorf, Germany
Wean Equipment Corp., Cleveland, O.

MACHINERY—Power Transmission
Reeves Pulley Company, Columbus, Indiana

MACHINERY—Pre-Heater for Wire (for Extrusion of Plastics)
Industrial Ovens, Inc., Cleveland, Ohio
National Rubber Machinery Co., Akron, Ohio

MACHINERY—Re-Spoolers
Boyd & Sons Manufacturing Corp., Philadelphia, Pa.
Davis Electric Co., Wallingford, Conn.
Eisler Engineering Co., Newark, N. J.
Emory, Robert J., Co., Newark, N. J.
Entwistle, Jas. L. Co., Providence, R. I.
National Mach'y Exch. (Used), New York, N. Y.
Steel Equipment Co., Cleveland, Ohio
Vaughn Machinery Co., Cuyahoga Falls, O.
Watson Machine Co., Paterson, N. J.
Wean Equipment Corp., Cleveland, Ohio
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Rod Mill
Morgan Construction Co., Worcester, Mass.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Rolling Mill
Morgan Construction Co., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Engineering Co., Cleveland, Ohio

MACHINERY—Rubber Insulating
National Rubber Machinery Co., Akron, Ohio
Royle, John & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Spark Testing
Davis Electric Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Providence, R. I
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Spring Making
Carlson Company, The, New York, N. Y.
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Wells, Frank L., Co., Kenosha, Wisc.

MACHINERY—Staple
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Straightening & Cutting
Fenn Manufacturing Co., The, Hartford, Conn.
Kilmer, M. D., & Co., Cleveland, Ohio
Lewis Machine Co., The, Cleveland, Ohio
Mettler Machine Tool Co., New Haven, Conn.
Meyer, Roth & Pastor Maschinenfabrik, Koln-Raderberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Wartenweiler, Emilio, Milano, Italy
Wells, Frank L., Co., Kenosha, Wisc.

MACHINERY—Stranding
Haskell-Dawes Machine Co., Philadelphia, Pa.
Hughesville Machine & Tool Co., Hughesville, Pa.
Milton Machine Works, Inc., Milton, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Swaging
Fenn Manufacturing Co., The, Hartford, Conn.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Take-Up and Pay-Out
Aetna-Standard Engineering Co., Pittsburgh, Pa.
American Insulating Mach'y Co., Phila., Pa.
Davis Electric Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.
Industrial Ovens, Inc., Cleveland, Ohio
Marshall-Richards Machine Co., Inc., Trenton, N.J.
Standard Machinery Co., Mystic, Conn.
Standard Mill Supply Co., Pawtucket, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Taping
American Insulating Mach'y Co., Phila., Pa.
Ets. Pourtier Frères, Romainville, France
New England Butt Co., Providence, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Testing, Physical
Scott Testers, Inc., Providence, R. I.

MACHINERY—Tinning Wire
American Insulating Mach'y Co., Phila., Pa.
Cook Manufacturing Co., The, Paterson, N. J.
Steel Equipment Co., Cleveland, Ohio
Syncro Machine Co., Perth Amboy, N. J.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Tinsel Rolling Mills
American Insulating Mach'y Co., Phila., Pa.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Trolley Wire
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Tube Mill, Cold Drawing
Aetna-Standard Engineering Co., Pittsburgh, Pa.
Marshall-Richards Machine Company, Inc., Trenton, N. J.
Mettler Machine Tool, Inc., New Haven, Conn.

MACHINERY—Tube Winders
Solomon, Michael, New York, N. Y.

MACHINERY—Twinning
(See Mach.—Bunching)

MACHINERY—Twisters, Wire
Cook Manufacturing Co., The, Paterson, N. J.
Davis Electric Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.
Haskell-Dawes Machine Co., Philadelphia, Pa.

MACHINERY—Used
National Machinery Exchange, New York, N. Y.
Solomon, Michael, New York, N. Y.
Wire & Textile Machy., Inc., Pawtucket, R. I.

MACHINERY—for Wire Welding (See WELDERS—Butt and Spot)

MACHINERY—Winding Wire
Eisler Engineering Co., Newark, N. J.
Entwistle, Jas. L., Co., Providence, R. I.
Federal Manufacturing Co., Wallingford, Conn.
New England Butt Co., Providence, R. I.
Standard Mill Supply, Pawtucket, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wire Bending
Eisler Engineering Co., Newark, N. J.
Kilmer, M. D., & Co., Cleveland, Ohio

MACHINERY—Wire Drawing
Aetna-Standard Engineering Co., Pittsburgh, Pa.
Cook Manufacturing Co., The, Paterson, N. J.
Fenn Manufacturing Co., The, Hartford, Conn.
Herborn Maschinenfabrik Herborn, Germany.
Marshall-Richards Machine Co., Inc., Trenton, N.J.
Morgan Construction Co., Worcester, Mass.
Morgardshammers Mekaniska Verksbod, Morganshammer, Sweden.
National Mach'y Exch. (Used), New York, N. Y.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Wire Forming
Baird Machine Co., The, Stratford, Conn
Kilmer, M. D., & Co., Cleveland, Ohio
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Wire Rope
Milton Machine Works, Inc., Milton, Pa.
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wrapping with Paper
Angier Corporation, The, Framingham, Mass.
Marshall-Richards Machine C., Inc., Trenton, N. J.
Terkelsen Machine Co., Boston, Mass.

MATERIAL HANDLING EQUIPMENT—
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, O.

MILLS—Tandem, Rolling & Edging
Torrington Mfg. Co., Torrington, Conn.
Wean Equipment Co., Cleveland, Ohio

NAILS—Wire
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Keystone Steel & Wire Co., Peoria, Ill.
Roebling, John A. Sons Co., Trenton, N. J.
Wickwire Brothers, Inc, Cortland, N. Y.

OVENS—Cable Lacquering
American Insulating Mach'y Co., Phila., Pa.
Carl-Mayer Corp., The, Cleveland, Ohio
Industrial Ovens, Inc., Cleveland, Ohio
Morrison Industries, Bedford, Ohio
Westinghouse Electric Corp., Industrial Heating Div., Meadville, Pa.

OVENS—Rod Bakers
Carl-Mayer Corp., The, Cleveland, Ohio
Michigan Oven Co., Detroit, Mich.
Morrison Industries, Bedford, Ohio

OVENS—Welding Rod Coating
Carl-Mayer Corp., The, Cleveland, Ohio
Industrial Ovens, Inc., Cleveland, Ohio
Morrison Industries, Bedford, Ohio

PAINT—Acid Proof
Ceilcote Company, Cleveland, Ohio

PAINT BONDING CHEMICALS—
American Chemical Paint Co., Ambler, Pa.

PAINTS—Heat Resisting
American Chemical Paint Co., Ambler, Pa.
Solar Compounds Corp., Linden, N. J.

PAPER—Creped Wrapping
Angier Corporation, The, Framingham, Mass.
Arkell Safety Bag Co., New York, N. Y.
Terkelsen Machine Co., Boston, Mass.

PAPER—For Coil Wrapping and Corrosion Prevention
Angier Corporation, The, Framingham, Mass.
Arkell Safety Bag Co., New York, N. Y.
Terkelsen Machine Co., Boston, Mass.

PATENT ATTORNEYS—
Lancaster, Allwine & Rommel, Washington, D. C.

PAY-OUT SYSTEMS—(See MACHINERY—Take-Up & Pay-Out)

PHOSPHATE COATING CHEMICALS—(See COMPOUNDS—Phosphate Coating)

PICKLING COMPOUNDS—
See (Inhibitors—Pickling)

PICKLING—Hooks, etc. Acid Resisting
Bronze Die Casting Co., Pittsburgh, Pa.
Youngstown Welding & Eng'g. Co., Youngstown, Ohio

PICKLING TANK LININGS—
Chemsteel Construction Co., Pittsburgh, Pa.
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio

PIPES & FITTINGS—Acid Resistant
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio

POTS—Lacquer
Industrial Ovens, Inc., Cleveland, Ohio

PRESSES—Hydraulic and Mechanical
Aetna-Standard Engineering Co., Pittsburgh, Pa.
Standard Machinery Co., Mystic, Conn.

PULLERS AND GRIPS—For Wire
Morgan Construction Co., Worcester, Mass.
Scudder, E. J. Fdry & Mach. Co., Trenton, N. J.
Sjogren Tool and Machine Co., Auburn, Mass.
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, Ohio

REEL AND TENSION STANDS—
Davis Electric Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Providence, R. I
Fidelity Machine Company, Inc., Philadelphia, Pa.
Industrial Ovens, Inc., Cleveland, Ohio.
Kilmer, M. D., & Co., Cleveland, Ohio
Roll-A-Reel, Cincinnati, Ohio.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Mill Supply Co., Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

WHERE TO BUY, Continued

REEL CRUTCHES—
Roll-A-Reel, Cincinnati, Ohio
Watson Machine Co., Paterson, N. J.

REELS & SPOOLS—Aluminum Alloy
Acrometal Products, Inc., Minneapolis, Minn.
Milton Machine Works, Inc., Milton, Pa.

REELS & SPOOLS—Annealing and Stranding
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Howsam Spool Co., Aurora, Ill.
Milton Machine Works, Inc., Milton, Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp Niles, Ohio

REELS & SPOOLS—Steel (All Types)
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Clark, J. L., Mfg. Co., Rockford, Ill.
Howsam Spool Co., Aurora, Ill.
Mason Can Company, East Providence, R. I.
Milton Machine Works, Inc., Milton, Pa.
Mossberg Pressed Steel Corp , Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp Niles, Ohio

REELS & SPOOLS—Wooden
Acrometal Products, Inc., Minneapolis, Minn.
American Woodworking Co., Chicago, Ill.
Bridge Mfg. Co., Inc., The, Hazardville, Conn.
Carris Reels, Inc., Rutland, Vt.
Durkee Mfg. Co., Pine River, Minn.
Nelson Company, The, Baltimore, Md.
North Anson Reel Co., No. Anson, Me.
Winchester Reel Co., Ashuelot, N. H.

REELS—Metal Bound
Durkee Mfg. Co., Pine River, Minn.
Howsam Spool Co., Aurora, Ill.
McCaskie, Inc., Wm., Westport, Mass.
North Anson Reel Co., No. Anson, Me.

REELS—Plywood
Carris Reels, Inc., Rutland, Vt.
McCaskie, Inc., Wm., Westport, Mass.
Nelson Company, The, Baltimore, Md.
Winchester Reel Co., Ashuelot, N. H.

REELS—Wire Mill
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Bridge Mfg. Co., The, Hazardville, Conn.
Carris Reels, Inc., Rutland, Vt.
Dykrex Corp., Roos Tool & Mfg. Div., Newark, N.J.
Durkee Mfg. Co., Pine River, Minn.
Howsam Spool Co., Aurora, Ill.
Mason Can Company, East Providence, R. I.
Milton Machine Works, Inc., Milton, Pa.
McCaskie, Inc., Wm., Westport, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Mettler Machine Tool, Inc., New Haven, Conn.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio
North Anson Reel Co., No. Anson, Me.

REFRACTORIES—High Temperature
Norton Company, Worcester, Mass.

ROD BAKERS— (See Ovens—Rod Bakers)

RODS—Stainless Steel
American Steel & Wire Co., Cleveland, Ohio
Pittsburgh Steel Co., Pittsburgh, Pa.

RODS—Wire—Non-Ferrous
American Brass Co., The, Waterbury, Conn.
Platt Bros. & Co., The, Waterbury, Conn.

RODS—Wire, Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Indiana.
Erie Iron & Supply Corp., Erie, Pa.
Fabrikant Steel Products, Inc., New York, N. Y.
Gerber, J., & Co., Inc., New York, N. Y.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Company, Pittsburgh, Pa.
Roebling's, John A., Sons Co., Trenton, N. J.
Youngstown Sheet & Tube Co., Youngstown, O.

ROPE—Wire
American Steel & Wire Company, Cleveland, O.
Bethlehem Steel Co., Bethlehem, Pa.
Roebling's John A., Sons Co., Trenton, N. J

RUST PROOF COMPOUNDS—
(See Compounds—Rust Preventing)

RUST REMOVING COMPOUNDS—
(See Compounds—Rust Preventing)

SALTS—Heat Treating, Descaling, etc.
Holden, A. F., Co., The, Detroit, Mich.

SATURATION SYSTEMS—
Industrial Ovens, Inc., Cleveland, Ohio
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

SOAPS—Industrial and Wire Drawing
(See Compounds—Wire Drawing)

SODIUM—for Descaling
Holden, A. F., Co., The, Detroit, Mich.

SPOOLS—(See Reels & Spools)

SPOOLS—Stamped Metal for Retail Wire Sales
Clark, J. L. Mfg. Co., Rockford, Ill.
Mason Can Co., East Providence, R. I.

STAMPINGS—Steel
Acrometal Products, Inc., Minneapolis, Minn.
Art Wire and Stamping Co, Newark, N. J.
Mossberg Pressed Steel Corp., Attleboro, Mass.

STRIP—Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Roebling's John A., Sons Co., Trenton, N. J.
Youngstown Sheet & Tube Co., Youngstown, O.

TANKS—Compound
Watson Machine Co., Paterson, N. J.

TANKS—Pickling and Plating
Ceilcote Company, Cleveland, Ohio
Chemsteel Construction Co., Pittsburgh, Pa.
Heil Process Equipment Corp., Cleveland, Ohio

TESTERS — INSULATION (See MACHINERY—Spark Testers)

TESTING EQUIPMENT (See MACHINERY Testing, Physical)

TINNING PROCESS—
Metal & Thermit Corp., New York, N. Y.

TINSEL—Electric Conductor
Montgomery Co., The, Windsor Locks, Conn.

TINSEL WIRE—Resistance, Lame, Decorative Cords Thread—Bare Copper, Silver and False Gold Coated, etc. (See TINSEL—Electric Conductor)

TOOLS—Wire Cutting
Porter, H. K., Inc., Somerville, Mass.

TRAMRAIL SYSTEMS—
Cleveland Tramrail Div. of the Cleveland Crane & Engineering Co., Wickliffe, O.

TRANSMISSIONS—Variable speed (See Machy—Power Transmission)

TRAVERSES & DRUMS—For Reels
(See Drums & Traverses)

TRAVERSE MECHANISMS—
Apco Mossberg Co., Attleboro, Mass.
New England Butt Co., Providence, R. I.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

TUBE BENDERS AND FORMERS—
Kilmer, M. D., & Co., Cleveland, Ohio

TURKS HEADS—
Fenn Manufacturing Co., The, Hartford, Conn.

VALVES & FITTINGS—Acid Resistant
Haveg Corp., Newark, Del.

VARNISHES—for Electric Wire
N. E. Lacquer Co., E. Providence, R. I.
Solar Varnish Corporation, Linden, N. J.

VULCANIZING PANS AND EQUIPMENT
American Insulating Mach'y Co., Phila., Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

WELDERS—Spot and Butt
Eisler Engineering Co., Newark, N. J.
Micro Products Co., Chicago, Ill.

WIRE—Aluminum
Elmet Division, North American Philips Company, Inc., Lewiston, Maine
Malin & Co., Cleveland, Ohio
Seneca Wire & Manufacturing Co., Fostoria, Ohio

WIRE—Barbed
Gerber, J., & Co., Inc., New York, N. Y.
Interlocking Fence Co., Morton, Ill.

WIRE—Brass
American Brass Co., The., Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.

WIRE—Brush
Gerber, J., & Co., Inc., New York, N. Y.
Groma Trading Corp., New York, N. Y.

WIRE—Cast
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Cold Heading
American Steel & Wire Co., Cleveland, Ohio
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Erie Iron & Supply Corp., Erie, Pa.
Gerber, J., & Co., Inc., New York, N. Y.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Roebling's John A., Sons Co., Trenton, N. J.
Seneca Wire & Manufacturing Co., Fostoria, Ohio
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Copper
American Brass Co., The, Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Gerber, J., & Co., Inc., New York, N. Y.

WIRE—Flat, Fine
Anchor Wire Corp., Jamaica, L. I., N. Y.
Elmet Division, North American Philips Company, Inc., Lewiston, Maine
Gerber, J., & Co., Inc., New York, N. Y.
Groma Trading Corp., New York, N. Y.
Montgomery Co., The, Windsor Locks, Conn.

WIRE—Forming
Art Wire and Stamping Co, Newark, N. J.
Pittsburgh Cut Wire Co., Pittsburgh, Pa.

WIRE—Galvanized
Fabrikant Steel Products, Inc., New York, N. Y.
Gerber, J., & Co., Inc., New York, N. Y.

WIRE—Manufacturers
American Steel & Wire Co., Cleveland, Ohio
Bethlehem Steel Co., Bethlehem, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Continental Steel Corp., Kokomo, Ind.
Gerber, J., & Co., Inc., New York, N. Y.
Groma Trading Corp., New York, N. Y.
Johnson Steel & Wire Co., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Roebling's, John A., Sons Co., Trenton, N. J.
Seneca Wire & Manufacturing Co., Fostoria, Ohio
U. S. Steel Co., N. Y., N. Y.
Wickwire Brothers, Inc., Cortland, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Music
American Brass Co., The, Waterbury, Conn.
American Steel & Wire Co., Cleveland, Ohio
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Malin & Co., Cleveland, Ohio
Seneca Wire & Manufacturing Co., Fostoria, Ohio
Specialty Wire Co., Inc., Worcester, Mass.

WIRE—Nickel Silver and Phosphor Bronze
American Brass Co., The, Waterbury, Conn.
Groma Trading Corp., New York, N. Y.
Malin & Co., Cleveland, Ohio.
Chase Brass & Copper Co., Waterbury, Conn.

WIRE—Oil Tempered
Pittsburgh Steel Co., Pittsburgh, Pa.

WIRE—Spring
American Brass Co., The, Waterbury, Conn.
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Gerber, J., & Co., Inc., New York, N. Y.
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Seneca Wire & Manufacturing Co., Fostoria, Ohio
Specialty Wire Co., Inc., Worcester, Mass.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Stainless Steel
American Steel & Wire Co., Cleveland, Ohio
Firth Sterling, Inc., Pittsburgh, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Specialty Wire Co., Inc., Worcester, Mass.
Wire Corporation, Worcester, Mass.

WIRE—Steel—Also Coppered and Galvanized Steel
Anchor Wire Corp., Jamaica, L. I., N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Erie Iron & Supply Corp., Erie, Pa.
Gerber, J., & Co., Inc., New York, N. Y.
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Seneca Wire & Manufacturing Co., Fostoria, Ohio
U. S. Steel Export Co., New York, N. Y.
Wickwire Brothers, Inc., Cortland, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Straightening and Cutting
Art Wire and Stamping Co., Newark, N. J.
Erie Iron & Supply Corp., Erie, Pa.
Pittsburgh Cut Wire Co., Pittsburgh, Pa.
Wickwire Brothers, Inc., Cortland, N. Y.

WIRE—Tungsten
North American Philips Co., Inc., Allied Products Division, New York, N. Y.

WIRE—Zinc
Platt Bros. & Co., The, Waterbury, Conn.

WRAPPING PAPER—Creped (See PAPER—Creped Wrapping)

YARNS & TAPES—
Glass Fibers, Inc., Toledo, Ohio

YARN TESTERS—
Heineman Corp., Oscar, Chicago, Ill.
Scott Testers, Inc., Providence, R. I.

The WATSON MACHINE COMPANY

ESTABLISHED 1845

PATERSON 3, NEW JERSEY, U. S. A.

ELECTRICAL WIRE AND CABLE, WIRE ROPE, CORDAGE AND MASTICATING MACHINERY MANUFACTURERS

WATSON

AUTOMATIC TRAVERSES

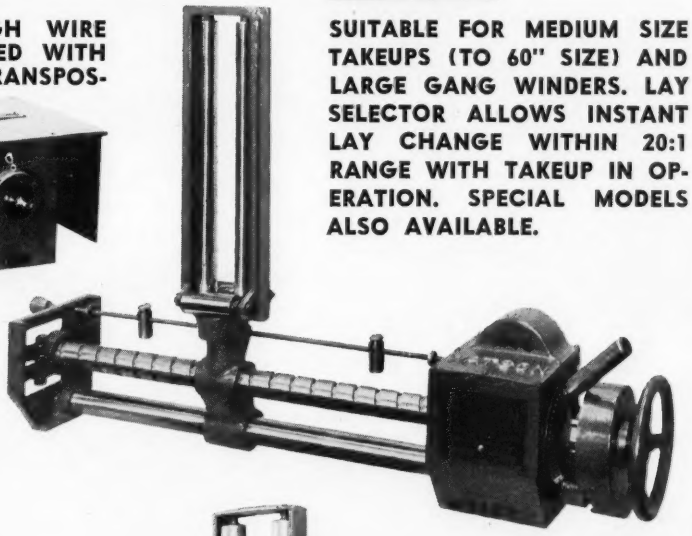
STANDARD STOCK MODELS SHOWN. SUITABLE AS REPLACEMENTS OF INADEQUATE MECHANISMS. ADAPTABLE TO APPLICATIONS WHERE A POWERFUL RECIPROCATING MOTION IS REQUIRED.

TRAVERSE "E"

CAPABLE OF FUNCTIONING AT HIGH WIRE TENSIONS AND COMMONLY FURNISHED WITH SMALL STRANDERS AND WINDERS. TRANSPOSABLE CHANGE GEARS PROVIDE FOR LAY VARIATION SETTING.

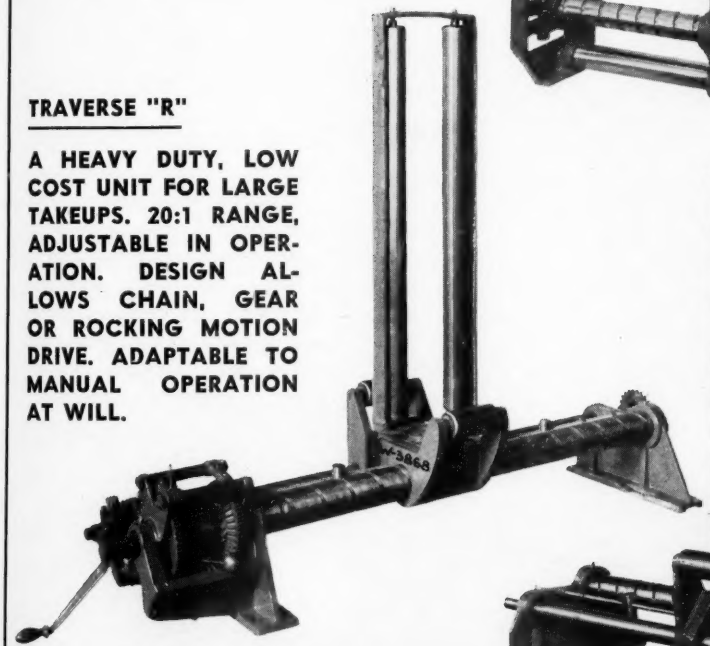
TRAVERSE "C"

SUITABLE FOR MEDIUM SIZE TAKEUPS (TO 60" SIZE) AND LARGE GANG WINDERS. LAY SELECTOR ALLOWS INSTANT LAY CHANGE WITHIN 20:1 RANGE WITH TAKEUP IN OPERATION. SPECIAL MODELS ALSO AVAILABLE.



TRAVERSE "R"

A HEAVY DUTY, LOW COST UNIT FOR LARGE TAKEUPS. 20:1 RANGE, ADJUSTABLE IN OPERATION. DESIGN ALLOWS CHAIN, GEAR OR ROCKING MOTION DRIVE. ADAPTABLE TO MANUAL OPERATION AT WILL.



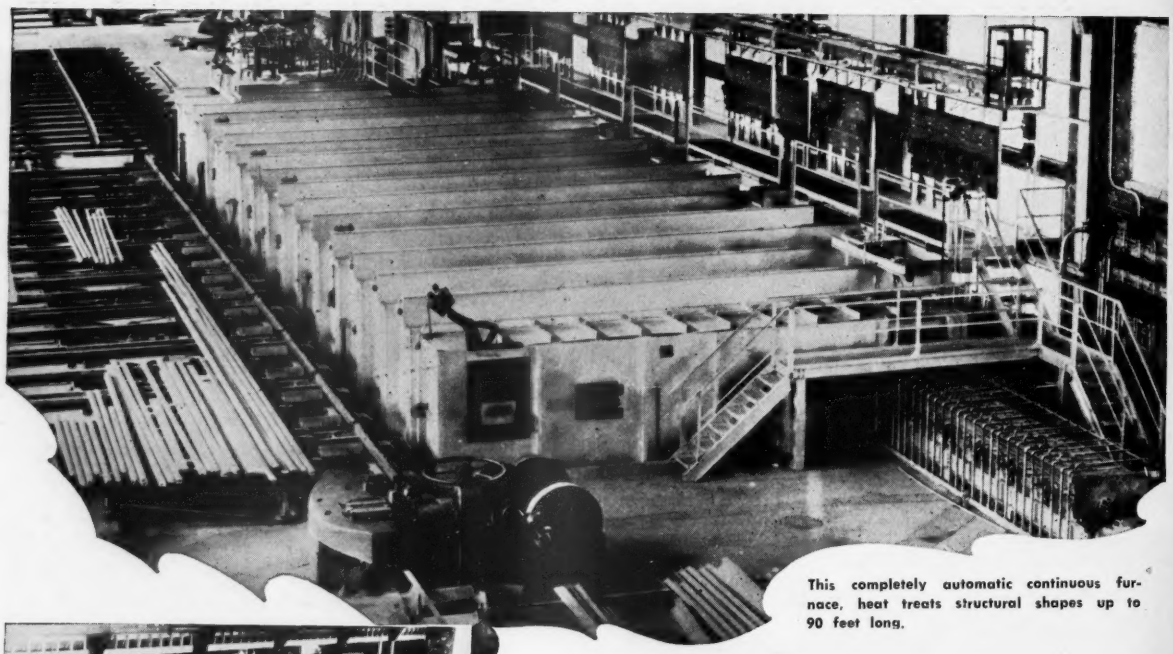
TRAVERSE "W"

MOST VERSATILE HEAVY DUTY UNIT EVER DESIGNED. INFINITE VARIATION WITHIN 20:1 RANGE, INSTANT SHIFT FROM AUTOMATIC TO HAND CONTROL AND VICE VERSA. ADAPTED FOR REMOTE CONTROL. SPECIAL EXTRA HEAVY DUTY MODEL "WW" AVAILABLE.

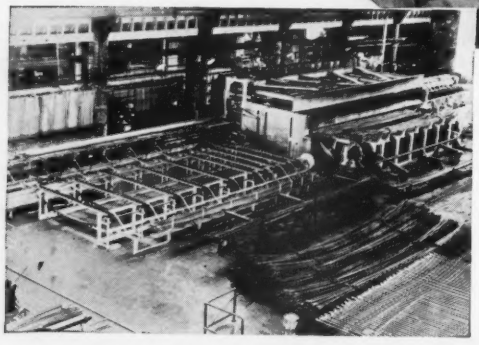
ALL MODELS AND TYPES PROVIDED WITH RAPIDLY ADJUSTABLE END POINT SETTING STOPS. INTERCHANGEABLE ROLLER OR SHEAVE GUIDE PROVIDED TO SUIT REQUIREMENTS.

* * * *

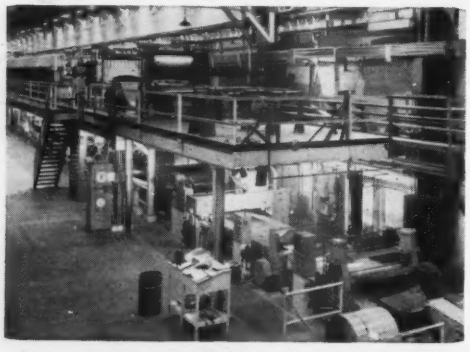
Bulletins Covering Each Model Available



This completely automatic continuous furnace, heat treats structural shapes up to 90 feet long.



An EF gas fired heat treating furnace, quenching machine and rod straightener—handles rods up to 30 ft. in length, continuously.



A large capacity EF continuous strip normalizing, annealing and galvanizing unit. This combination gas fired radiant tube and electrically heated installation is over 400 feet long.

93 ft. Long x 26 ft. Wide Maintains Temperature ±5°

Because of its great number of successful, large and unusual furnace installations The Electric Furnace Co. has justly earned an enviable reputation for solving difficult production furnace problems.

The furnaces shown are typical examples — the large aluminum furnace above is completely automatic — large structural shapes up to 90 ft. in length are automatically charged into the furnace, carried across the heating chamber and discharged through a spray quench — everything is automatic.

The heating chamber is 93 ft. long by 26 ft. wide. Despite its size it maintains a uniform temperature throughout the entire heating chamber.

The furnace shown above, at left is another outstanding installation — this equipment heats, quenches and straightens rods up to 30 ft. in length and was the first successful continuous furnace of this type built for this process. Several somewhat similar installations have since been made.

The view at left shows one of several large capacity continuous units we have built for processing ferrous and non ferrous strip.

Other outstanding production furnace installations include furnaces for bright annealing both ferrous and non-ferrous strip, wire, tubing and other products . . . furnaces for the production heat treatment of tank armor castings, cartridge cases, shell forgings, bomb and gun parts, machine gun cartridge clips, aircraft and aircraft engine parts, aluminum and magnesium castings, bolts, springs, and many other products.

If you have a difficult production furnace problem put it up to our experienced engineers—no job is too large or too unusual.

We specialize in building *production* furnaces.

Gas-Fired, Oil-Fired EF and Electric Furnaces

for any Process, Product or Production

THE ELECTRIC FURNACE CO.

WILSON ST. at PENNA. R. R. *Salem - Ohio*